



**Beaver Dam - White River, Arkansas**

**U.S. Army Corps  
of Engineers**  
Little Rock District

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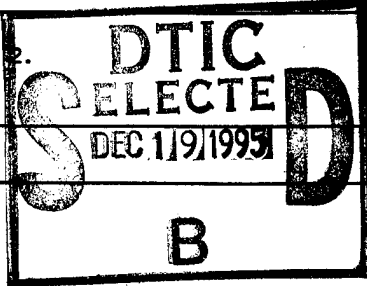
# **Beaver Dam Secant Pile Wall Completion Report**

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**OCTOBER 1995**

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13. ABSTRACT <p>The report presents a comprehensive project history, beginning in 1966 with the initial Beaver Lake (located near Eureka Springs, in northwest Arkansas, U.S.A.) impoundment against Dike 1, which produced observable surface seepage from five areas downstream of Dike 1. Seepage continued to increase due to limestone rock weathering and solutioning, combined with removal of colloidal sized soil material from the overburden and weathered rock zones, particularly along two faults that formed a graben beneath Dike 1. The pervasive seepage distress evolved until a muddy water boil was discovered during a "pool of record" event in December 1984, and ultimately warranted a remedial construction project. The selected method for alleviating the seepage distress consisted of a 1,475-foot-long concrete diaphragm wall located immediately upstream of Dike 1 and penetrating to depths of 80 to 185 feet. Utilizing a request for proposals/technical evaluation/price negotiation contractual process, the construction was accomplished by two separate joint venture contractors under two contracts. The first contractor performed site preparation and constructed an upstream work platform; however, the contractor failed to complete the project because the specialized rock mill excavation equipment could not excavate the proposed overlapping trench segments into the high compressive strength unweathered rock that typically exceeded 15,000 psi. The inability to construct the wall resulted in the first contract being terminated for convenience to the Government. The second contractor, after overcoming shaft excavation instability problems, completed the wall using a large diameter down-the-hole air percussion hammer drill for excavation. A total of 739 overlapping, 34-inch diameter shafts were drilled on 24-inch centers. The shafts were filled with concrete using the gravity tremie method; thus, creating a continuous concrete secant pile wall with a minimum width of 18 inches. The completed wall successfully eliminated all observable seepage downstream of the dike, and significantly reduced piezometric levels. The project construction was completed in December 1994, at an approximate cost of \$33,535,000.</p>		

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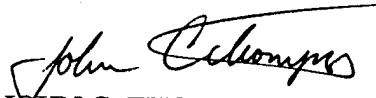
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JOHN C. THOMPSON, Lt Col, USAF  
Chief, Automated Mission Planning Section

Attachment  
Distribution List

# BEAVER DAM COMPLETION REPORT

## APPENDIX - G



# APPENDIX G

## Explanation of Terms Used

<u>Term</u>	<u>Meaning</u>
Pile #	The Number Assigned to each pile, beginning at 0 on the northern terminus of job and ending with 738 at southern terminus of contract.
Drilling Date	The date or dates the pile was drilled.
Rig #	Either Rig 1 (Mounted on a Link Belt 318 crane) or Rig 2 (Mounted on a Manitowoc 4100 crane).
Excavation Method	Type of Hammer Used.
Drill Footage	Amount of footage drilled in the time frame given.
Redrill Footage	Amount of redrilling necessary due to down staging or other reason given.
Drill Time	Amount of time it took to drill the pile to the depth given.
Redrill Time	Time interval required to excavate redrilled portion of the pile.
Penetration Rate	The rate (ft/hr) at which pile was drilled or redrilled.
Concrete Date	The date on which the corresponding spec. concrete or non-spec. concrete/grout was placed for stabilization purposes.
Spec Concrete	The specification concrete used to make the wall.
Non-Spec Concrete	Concrete used to stabilize the drill hole.
Grout	Grout used to stabilize the drill hole.
Theoretical Vol.	The volume of grout, non-spec concrete or spec concrete calculated to fill the drill hole.
Overbreak	A percentage difference between the calculated volume of grout or concrete to fill a drill hole and the amount actually required.

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<u>Term</u>	<u>Meaning</u>
Verticality	The amount and direction of deviation from perfect verticality.
S-ARC	The amount of over lap of a pile in inches between the adjacent two piles (one to the north and one to the south) calculated from the verticality of the 3 adjoining piles.
Quality Coring	Tells if the pile was cored to check concrete quality.

## **APPENDIX G**

**Part 1 ..... Contractual Piles**

**Part 2 ..... Conforming Piles**

**Part 3 ..... Production Rates  
(Various Materials)**

*Blue skirt*

## **CONTRACTUAL PILE DATA**

Secondary Pile # 0  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
11/16/92	1	DHD130A	81		5.04		18.07		11/16/92			21	18.9	11.0%

Total Drill Time = 5.04 Hours  
Average Penetration Rate = 18.07 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1° South X 1° East  
S - ARC North = na  
S - ARC South = 28.29

Quality Coring: None.

Comments:

Primary Pile # 1  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT./HR)	Redrill (FT./HR)							
11/30/92	1	DHD130A	82		4.22		19.43		12/01/92			20.75	19.1	8.4%	

Total Drill Time = 4.22 Hours  
Average Penetration Rate = 19.43 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 0° N/S X 0° E/W  
S - ARC North = na  
S - ARC South = 28.18

Quality Coring: None.

Comments:

# Secondary Pile # 2 Area "A"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Drill (HRS)	Redrill (HRS)	Pure Drill Time (HRS)	Redrill (FT)	Penetration Rate (FT/HR)	Redrill (FT/HR)
11/20/92	1	DHD130A	82	6.33				12.95	
					Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)
					11/21/92			22	19.1
					Overbreak				
					14.9%				

Total Drill Time = 6.33 Hours  
Average Penetration Rate = 12.95 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

## Vertically Information

At Full Depth = 0° N/S X 4.5° East  
S - ARC North = 28.29  
S - ARC South = 26.16

Quality Coring: NQ 0' to 19'.

Comments:

# Primary Pile # 3 Area "A"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Drill (HRS)	Redrill (HRS)	Pure Drill Time (HRS)	Redrill (FT)	Penetration Rate (FT/HR)	Redrill (FT/HR)
03/10/93	2	DHD130A	81	5.56				14.57	
					Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)
					03/11/93			22.5	18.9
					Overbreak				
					19.0%				

Total Drill Time = 5.56 Hours  
Average Penetration Rate = 14.57 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

## Vertically Information

At Full Depth = 0° N/S X 0° E/W  
S - ARC North = 26.18  
S - ARC South = 26.14

Quality Coring: None.

Comments:

Secondary Pile # 4  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
01/19/93	1	DHD130A	81		8.71		9.30			01/21/93			23	18.9	21.6%

Total Drill Time = 8.71 Hours  
Average Penetration Rate = 9.30 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1" North X .38° East  
S-ARCNorth = 28.18  
S-ARCSouth = 30.01

Quality Coring: NQ 0' to 87'

Comments:

Primary Pile # 5  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment		Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
	Rig #	Excavation Method	Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
03/29/93	2	DHD 130A	82		8.66		9.47		03/30/93			23	19.1	20.1%	

Total Drill Time = 8.68 Hours  
Average Penetration Rate = 9.47 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 3.5" North X 2° West  
S-ARCNorth = 28.14  
S-ARCSouth = 18.78

Quality Coring: None.

Comments:

CUT-OFF WALL EXCAVATION				CUT-OFF WALL CONSTRUCTION										
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
02/03/93	1	DHD 130A	82		8.58			9.56	02/08/93			24	19.1	25.3%

Total Redrill Time =

Average Penetration Rate =

None

**Vertically Information**

At Full Depth =	1.35° South X 3.75° West
S - ARC North =	30.01
S - ARC South =	33.80

**Comments:**

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT/HR)	Redrill (FT/HR)							
04/02/93	2	XL-24	82		2.83		28.98			04/03/93			21	19.1	9.7%

Total Redrill Time =  
Average Penetration Rate =  
None

Vertically Information

At Full Depth =	4.25° North X 1.33° West
S - ARC North =	18.78
S - ARC South =	21.05

Comments:



Secondary Pile # 8  
Area "A"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate (FT / HR)	Redrill (FT / HR)	Concrete Date
02/18/93	2	DHD130A	81		10.74		7.54		02/20/93
Total Drill Time = 10.74 Hours					Theoretical Volume (CU.YD.)				
Average Penetration Rate = 7.54 Feet / Hour					Spec. Concrete (CU.YD.)				
Total Redrill Time = None					Non-Spec. Concrete (CU.YD.)				
Average Penetration Rate =					Grout (CU.YD.)				
					Overbreak				
					28.9%				

Total Drill Time = 10.74 Hours  
Average Penetration Rate = 7.54 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Vertically Information  
At Full Depth = .59° North X .59° West  
S - ARC North = 33.80  
S - ARC South = 22.80

Quality Coring: None.

Comments:

Primary Pile # 9  
Area "A"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate (FT / HR)	Redrill (FT / HR)	Concrete Date
04/02/93	2	XL-24	81		3.90		20.77		04/07/93
Total Drill Time = 3.90 Hours					Theoretical Volume (CU.YD.)				
Average Penetration Rate = 20.77 Feet / Hour					Spec. Concrete (CU.YD.)				
Total Redrill Time = None					Non-Spec. Concrete (CU.YD.)				
Average Penetration Rate =					Grout (CU.YD.)				
					Overbreak				
					26.9%				

Total Drill Time = 3.90 Hours  
Average Penetration Rate = 20.77 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Vertically Information  
At Full Depth = 2° South X 1° East  
S - ARC North = 21.05  
S - ARC South = 33.79

Quality Coring: None.

Comments:

Secondary Pile # 10  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION						
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak		
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)								
02/23/93	2	CLUSTER		81		8.66		9.35	02/24/93			23	18.9	21.6%		

Total Drill Time = 8.66 Hours  
Average Penetration Rate = 9.35 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 3.47" North X 1.87" ast  
S--ARC North = 22.80  
S--ARC South = 24.23

Quality Coring: None.

Comments:

Primary Pile # 11  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION						
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak		
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)								
04/02/93	2	XL-24		82		3.66		22.40	04/03/93			22.5	19.1	17.5%		

Total Drill Time = 3.66 Hours  
Average Penetration Rate = 22.40 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1.75" North X 1.5" East  
S--ARC North = 33.79  
S--ARC South = 23.64

Quality Coring: None.

Comments:

Secondary Pile # 12  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
02/18/93	2	DHD130A	82		8.99		9.12		02/20/93			24	19.1	25.3%

Total Drill Time = 8.99 Hours  
Average Penetration Rate = 9.12 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 0° N/S X 2.82° West  
S-ARC North = 24.23  
S-ARC South = 33.06

Quality Coring: None.

Comments:

Primary Pile # 13  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment		Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
	Rig #	Excavation Method	Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
03/12/93	2	DHD130A	82		7.91		10.37		03/13/93			24	19.1	25.3%

Total Drill Time = 7.91 Hours  
Average Penetration Rate = 10.37 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 4.87° North X 1.79° West  
S-ARC North = 23.64  
S-ARC South = 21.80

Quality Coring: None.

Comments:

Secondary Pile # 14  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
12/07/92	1	DHD130A	81		19.85		4.08		12/09/92			21.5	18.9	13.7%

Total Drill Time = 19.85 Hours  
Average Penetration Rate = 4.08 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1.63" North X 1.13" West  
S-ARC North = 33.06  
S-ARC South = 28.17

Quality Coring: None.

Comments:

Primary Pile # 15  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
03/29/93	2	CLUSTER	82		5.17		15.86		03/30/93			24	19.1	25.3%

Total Drill Time = 5.17 Hours  
Average Penetration Rate = 15.86 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1.23" North X 1.98" West  
S-ARC North = 21.80  
S-ARC South = 21.87

Quality Coring: None.

Comments: Small Void in Pile.

Secondary Pile # 16  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
10/16/92	1	DHD130A	80		9.50		8.42		10/21/92			22	18.7	17.8%

Total Drill Time = 9.50 Hours  
Average Penetration Rate = 8.42 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1.85" South X 0.62" East  
S-ARC North = 26.17  
S-ARC South = 27.81

Quality Coring: 6' 0" to 30' w/pile #17

Comments:

Primary Pile # 17  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
11/04/92	1	DHD130A	83		4.87		17.04		11/05/92			21	19.4	8.3%

Total Drill Time = 4.87 Hours  
Average Penetration Rate = 17.04 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1" South X 1.5" West  
S-ARC North = 21.87  
S-ARC South = 25.66

Quality Coring: 6' 0" to 30' w/pile #16

Comments:

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
10/24/92	1	DHD130A	82		7.92			10.35		10/24/92	20	19.1	4.4%	

Total Redrill Time =  
Average Penetration Rate =  
None

At Full Depth =	1.75° South X 2.5° West
S-ARC North =	27.81
S-ARC South =	34.53

**Comments:**

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time			Penetration Rate		Concrete Date	GROUT (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT./HR)	Redrill (FT./HR)							
11/12/92	1	DHD130A	82		5.05			16.24		11/12/92			21	19.1	9.7%

Total Redrill Time =  
Average Penetration Rate =  
None

Verticality Information

At Full Depth =	4.5° North X 0° E/W
S-ARC North =	23.66
S-ARC South =	17.59

**Comments:**

Secondary Pile # 20  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
10/29/92	1	DHD130A	81		7.66			10.57				21	18.9	11.0%

CUT-OFF WALL EXCAVATION				CUT-OFF WALL CONSTRUCTION										
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
11/24/92	1	DHD130A		81		9.12		8.88				22	18.9	16.3%

Total Redrill Time =  
Average Penetration Rate =  
None

Quality Coring: None.

Primary Pile # 23  
Area "A"

Area A

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
03/10/93	2	CLUSTER	81		5.42		14.94		03/11/93			23	18.9	21.6%

Total Redrill Time =  
Average Penetration Rate =  
None

**Quality Coring: None.**

Comments:



Secondary Pile # 24  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
12/10/92	1	DHD130A	81		16.23		4.99		12/11/92			21	18.9	11.0%	

Total Drill Time = 16.23 Hours  
Average Penetration Rate = 4.99 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 0° N/S X 0° E/W  
S-ARC North = 30.45  
S-ARC South = 31.9

Quality Coring: None.

Comments:

Primary Pile # 25  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
04/03/93	2	XL-24	93		4.50		20.67		04/04/93			25	21.7	15.1%	

Total Drill Time = 4.50 Hours  
Average Penetration Rate = 20.67 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 4° North X 2° West  
S-ARC North = 26.76  
S-ARC South = 22.54

Quality Coring: None.

Comments: Overdrilled pile accidentally -- Contractor though he was in 90' section

Secondary Pile # 26  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
02/14/93	2	CLUSTER	92		5.00		18.40		02/19/93			25	21.5	16.4%

Total Drill Time = 5.00 Hours  
Average Penetration Rate = 18.40 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1.5" North X 2" East  
S-ARC North = 31.9  
S-ARC South = No Overlap at Full Depth Corrected With Conforming Pile.

Quality Coring: None.

Comments: Overdrilled hole accidentally - Contractor thought he was in 90' section

Primary Pile # 27  
Area "A"

CUT-OFF WALL EXCAVATION														CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak				
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)										
04/07/93	2	XL-24	82		4.67		17.56		04/08/93			21.5	19.1	12.3%				

Total Drill Time = 4.67 Hours  
Average Penetration Rate = 17.56 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 9.81" South X 7.55" West  
S-ARC North = No Overlap at Full Depth Corrected With Conforming Pile.  
S-ARC South = 35.92

Quality Coring: None.

Comments:

Secondary Pile # 28  
Area "A"

Area A

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
02/25/93	2	CLUSTER	82		6.08		13.49		02/26/93			23	19.1	20.1%

Total Drill Time = 6.08 Hours  
Average Penetration Rate = 13.49 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1.90" North X 3.80" West  
S--ARC North = 35.92  
S--ARC South = 21.93

Quality Coring: None.

Comments:

Primary Pile # 29  
Area "A"

CUT-OFF WALL EXCAVATION														CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak				
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)										
04/12/93	2	XL-24	82		6.50			12.62	04/14/93			23	19.1	20.1%				

Total Drill Time = 6.50 Hours  
Average Penetration Rate = 12.62 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1" South X 0" E/W  
S--ARC North = 21.93  
S--ARC South = 31.09

Quality Coring: None.

Comments:

Secondary Pile # 30  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
03/30/93	2	DHD130A	81		10.48			7.73		03/30/93		24	18.9	26.9%

Secondary Pile # 32  
Area "A"

CUT - OFF WALL EXCAVATION										CUT - OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non - Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
04/02/93	2	XL - 24	82		4.42		18.55		04/03/93			24	19.1	25.3%

Total Drill Time = 4.42 Hours  
Average Penetration Rate = 18.55 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 7.78° South X 1.56° East  
S-ARC North = 16.23  
S-ARC South = 34.59

Quality Coring: None.

Comments:

Primary Pile # 33  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
04/12/93	1	XL-24	82		5.00		16.40		07/14/93			23	19.1	20.1%

Total Drill Time = 5.00 Hours  
Average Penetration Rate = 16.40 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1.5° South X .75° West  
S-ARC North = 34.59  
S-ARC South = 30.04

Quality Coring: None.

Comments:

Secondary Pile # 34  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
02/22/93	2	DHD130A	80		9.75		8.21		02/27/93			23	18.7	23.1%

Total Drill Time = 9.75 Hours  
Average Penetration Rate = 8.21 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1.5" North X 4.17" East  
S-ARC North = 30.04  
S-ARC South = 27.29

Quality Coring: None.

Comments:

Primary Pile # 35  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
03/13/93	2	DHD130A	81		11.67			6.94	03/13/93			23	18.9	21.6%

Total Drill Time = 11.67 Hours  
Average Penetration Rate = 6.94 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 2.25" North X 0" E/W  
S-ARC North = 27.29  
S-ARC South = 17.32

Quality Coring: None.

Comments:

Secondary Pile # 36  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
10/21/92	1	DHD130A		83		14.41		5.76		10/22/92			21.5	19.4	10.9%

Total Drill Time = 14.41 Hours  
Average Penetration Rate = 5.76 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 3.18" South X 3.88" West  
S-ARC North = 17.32  
S-ARC South = 31.89

Quality Coring: None.

Comments:

Primary Pile # 37  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
11/13/92	1	DHD130A		81		4.75		17.05	11/13/92			21	18.9	11.0%

Total Drill Time = 4.75 Hours  
Average Penetration Rate = 17.05 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1" North X .5" West  
S-ARC North = 31.89  
S-ARC South = 24.09

Quality Coring: None.

Comments:

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
11/06/92	1	DHD130A	151		16.78		9.00		11/07/92			38	35.3	7.8%

Total Redrill Time =  
Average Penetration Rate =  
None

**Quality Coring: None.**

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
12/15/92	1	DHD130A	152		21.30		7.14		12/19/92			38.5	35.5	8.5%

**Total Redrill Time =**

**Average Penetration Rate =**

**None**

**Quality Coring: NQ 0' to 19.8" (for contractors use)**

**Comments: PUMP TRUCK USED FOR CONCRETE PLACEMENT.**



CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
		Excavation Method	Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)							Redrill (FT / HR)
11/02/92	1	DHD130A	151		22.09		6.84		11/03/92		37	35.3	4.9%	

Total Redrill Time =  
Average Penetration Rate =  
None

Verticality Information

At Full Depth =	1.32' South X 2.64' West
S-ARC North =	27.66
S-ARC South =	No Overlap at Full Depth, Corrected with Conforming Pile.

**Comments:**

CUT-OFF WALL EXCAVATION				CUT-OFF WALL CONSTRUCTION										
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
04/07/93	2	XL-24	152		8.58		17.72		04/09/93			40	35.5	12.7%

Total Redrill Time =  
Average Penetration Rate =  
None

Verticality Information	
At Full Depth =	20.40' South X 5.83' East
S-ARC North =	No Overlap at Full Depth, Corrected with Conforming Pile.
S-ARC South =	46.31'

**Comments:**

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
11/28/92	1	DHD130A	151		28.83		5.24		11/30/92			38.5	35.3	9.2%

Total Redrill Time =  
Average Penetration Rate =  
None

Vertically Information	At Full Depth =	1.75" SX 1.25" E
	S-ARC North =	46.31
	S-ARC South =	27.10

Comments: This pile was drilled to 35' by accident on 3/30/93. It took 13 cu.yd. of spec. concrete.

CUT-OFF WALL EXCAVATION		CUT-OFF WALL CONSTRUCTION												
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT./HR)	Redrill (FT./HR)						
04/13/93	2	DHD130A	152		12.67			12.00				41	35.5	15.5%

**Total Redrill Time =**

**Average Penetration Rate =**

**None**

Verticality Information

At Full Depth =	1.5" S X 1.88" E
S-ARC North =	27.10
S-ARC South =	30.66

Comments:

Secondary Pile # 44  
Area "A"

Area A

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	GROUT (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
02/01/93	1	DHD130A	151		25.97		5.81		02/05/93			40	35.3	13.4%	

Total Drill Time = 25.97 Hours  
Average Penetration Rate = 5.81 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1.5" N X 0" EW  
S-ARC North = 30.66  
S-ARC South = 23.15

Quality Coring: None.

Comments:

Primary Pile # 45  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Grout (CU.YD.)	Concrete Date	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
03/14/93	2	DHD130A	152		14.83		10.25			03/15/93		40	35.5	12.7%	

Total Drill Time = 14.83 Hours  
Average Penetration Rate = 10.25 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = .88" S X 1.46" W  
S-ARC North = 23.15  
S-ARC South = 22.52

Quality Coring: None.

Comments:

CUT-OFF WALL EXCAVATION				CUT-OFF WALL CONSTRUCTION										
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
11/18/92	1	DHD130A		151		28.83		5.24		11/21/92		40	35.3	13.4%

**Total Redrill Time =**  
**Average Penetration Rate =**  
**None**

Vertically Information

At Full Depth =	2.93" S X 4.89" E
S-ARC North =	22.52
S-ARC South =	24.33

**Comments:**

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment	Excavation Method		Drill Footage		Pure Drill Time		Penetration Rate		Non-Spec. Concrete (CU.YD.)	Grout (CU.YD.)	Concrete Date	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
		Rig #		Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
12/09/92	1	DHD130A		152		19.57		7.77				12/10/92	38.5	35.5	8.5%

Total Redrill Time =  
Average Penetration Rate =  
None

Verticality Information

At Full Depth =	3.5" S X 2.5" W
S--ARC North =	24.33
S--ARC South =	29.32

**Comments:**

Secondary Pile # 48  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
10/28/92	1	DHD130A	152		25.00		6.08		10/29/92			37	35.5	4.2%

Total Drill Time = 25.00 Hours  
Average Penetration Rate = 6.08 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1.55° S X .75° W  
S-ARC North = 29.32  
S-ARC South = 37.60

Quality Coring: None.

Comments:

Primary Pile # 49  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
04/17/93	2	DHD 130A	152		12.17		12.49			04/19/93			41	35.5	15.5%

Total Drill Time = 12.17 Hours  
Average Penetration Rate = 12.49 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 7.5° N X 2.25° E  
S-ARC North = 37.60  
S-ARC South = 10.45

Quality Coring: None.

Comments:

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
02/08/93	2	DHD130A	150		25.66		5.85		02/09/93			42	35.0	19.9%

Total Redrill Time = None

**Quality Coring: None.**

Primary Pile # 51  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
03/30/93	2	XL-24	152		5.75		26.43		04/01/93			41	35.5	15.9%

Total Redrill Time = None

Quality Coring: None.

**Comments:**

Secondary Pile # 52  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
02/17/93	2	DHD130A	152		13.25		11.47		02/19/93			42	35.5	18.3%

Total Drill Time = 13.25 Hours  
Average Penetration Rate = 11.47 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 2.2" N X 5.7" W  
S--ARC North = 41.75  
S--ARC South = 17.62

Quality Coring: None.

Comments:

Primary Pile # 53  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
04/23/93	2	DHD130A	153		12.92		11.84		04/24/93			42	35.7	17.6%

Total Drill Time = 12.92 Hours  
Average Penetration Rate = 11.84 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 3.25" S X 3.44" W  
S--ARC North = 17.62  
S--ARC South = 32.35

Quality Coring: None.

Comments:

Secondary Pile # 54  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
02/23/93	2	DHD130A	152		10.66		14.26		02/23/93			41.5	35.5	16.9%

Total Drill Time = 10.66 Hours  
Average Penetration Rate = 14.26 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 2.31" N X 3.6" E  
S-ARC North = 32.35  
S-ARC South = 22.27

Quality Coring: None.

Comments:

Primary Pile # 55  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
04/14/93	2	DHD130A	152		13.42		11.33		04/15/93			41	35.5	15.5%

Total Drill Time = 13.42 Hours  
Average Penetration Rate = 11.33 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 0" N/S X 2.31" W  
S-ARC North = 22.27  
S-ARC South = No Overlap at Full Depth, Corrected with Conforming Pile.

Quality Coring: None.

Comments:



CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak		
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
03/11/93	2	DHD130A	151		11.17		13.52		03/12/93	41	35.3	16.3%		

**Comments:**

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
04/03/93	2	XL-24		152		4.58		33.19	04/06/93			41	35.5	15.5%

**Comments:**

Secondary Pile # 58  
Area "A"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate (FT / HR)	Redrill (FT / HR)	Overbreak
03/26/93	1	DHD130A	151		11.33		13.33		17.7%
					11.33 Hours				
					13.33 Feet / Hour				

Total Drill Time =  
Average Penetration Rate =

Total Redrill Time =  
Average Penetration Rate =

Vertically Information  
At Full Depth = 7.94" S X 4.11" W  
S--ARC North = 27.63  
S--ARC South = 6.47

Quality Coring: None.

Comments:

Primary Pile # 59  
Area "A"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate (FT / HR)	Redrill (FT / HR)	Overbreak
04/19/93	2	DHD130A	152		21.99		6.91		12.7%
					21.99 Hours				
					6.91 Feet / Hour				

Total Drill Time =  
Average Penetration Rate =

Total Redrill Time =  
Average Penetration Rate =

Vertically Information  
At Full Depth =  
S--ARC North = 6.47  
S--ARC South = 36.61

Quality Coring: None.

Comments:

5

## CUT-OFF WALL EXCAVATION

Total Redrill Time =  
Average Penetration Rate =  
None

Verticality Information	At Full Depth =	1.10" N X 1.90" E
	S-ARC North =	36.31
	S-ARC South =	20.46

Quality Coring: None.

**Comments:**

## Area "A"

# CUT-OFF WALL EXCAVATION

**Total Redrill Time =**

**Average Penetration Rate =**

**None**

Veracity Information	18°S X 9.76°E
At Full Depth =	20.46
S-APC North =	27.09
S-APC South =	

**Quality Coring: None.**

**Comments:**

Secondary Pile # 62  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
12/02/92	1	DHD130A	151		18.17		8.31		12/03/92			38	35.3	7.8%

Total Drill Time = 18.17 Hours  
Average Penetration Rate = 8.31 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 0° N/S X 18.25° E  
S-ARC North = 27.09  
S-ARC South = 27.75

Quality Coring: NX/NQ cored to 160' on 4/30/93

Comments: Redrilled by accident 3/23/93 to 50'.

Primary Pile # 63  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
05/22/93	1	DHD130A	150		13.42		11.18		05/24/93			40	35.0	14.2%

Total Drill Time = 13.42 Hours  
Average Penetration Rate = 11.18 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 7.55° N X 1.76° E  
S-ARC North = 27.75  
S-ARC South = No Overlap at Full Depth, Corrected with Conforming Pile.

Quality Coring: None.

Comments:

CUT-OFF WALL EXCAVATION				CUT-OFF WALL CONSTRUCTION										
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
04/01/93	2	XL-24	152		5.83			26.07	04/02/93			42	35.5	18.3%

Total Redrill Time =  
Average Penetration Rate =  
None

**Quality Coring: None.**

Primary Pile # 65  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
05/07/93	1	DHD130A	153		16.08		9.51		05/10/93			41	35.7	14.8%

Total Redrill Time =  
Average Penetration Rate =  
None

**Quality Coring: None.**

**Comments:**

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment	Pig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
				Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
04/08/93		2	DHD130A		152		16.75		9.07				41	35.5	15.5%

Total Redrill Time =  
Average Penetration Rate =  
None

Verticality Information	3.81" S X 4.13" E
At Full Depth =	
S-ARC North =	20.73
S-ARC South =	31.66

**Comments:**

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
05/18/93	1	DHD130A	150		16.83			8.91		05/20/93		39	35.0	11.3%

Total Redrill Time =  
Average Penetration Rate =  
None

Vertically Information

At Full Depth =	0° N/S X 2.11" E
S-ARC North =	31.66
S-ARC South =	31.39

Comments:

CUT - OFF WALL EXCAVATION										CUT - OFF WALL CONSTRUCTION					
Drilling Date	Equipment	Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
				Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
03/05/93		2	DHD130A		150		21.32		7.04	03/06/93			41	35.0	17.0%

Comments: Deficient Joint Width at Full Depth, Corrected with Conforming Pile.

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION						
Drilling Date	Equipment	Pig #	Excavation Method	Drill Footage		Pure Drill Time			Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
				Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
04/20/93		2	DHD130A		152			13.40		11.34				40	35.5	12.7%

**Comments:**

Secondary Pile # 70  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
02/09/93	2	DHD130A	150		18.08		8.30		02/10/93			43.5	35.0	24.2%

Total Drill Time = 18.08 Hours  
Average Penetration Rate = 8.30 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1.92" N X .32" W  
S-ARC North = 35.49  
S-ARC South = 17.46

Quality Coring: None.

Comments:

Primary Pile # 71  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
05/13/93	1	DHD130A	150		14.75		10.17		05/14/93			39	35.0	11.3%

Total Drill Time = 14.75 Hours  
Average Penetration Rate = 10.17 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 3.52" S X 3.52" W  
S-ARC North = 17.46  
S-ARC South = 31.10

Quality Coring: None.

Comments:



# Secondary Pile # 72

Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
12/11/92	1	DHD130A	151		21.05			7.17	12/12/92			40.5	35.3	14.9%

Total Drill Time = 21.05 Hours  
Average Penetration Rate = 7.17 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Vertically Information  
At Full Depth = 0' N/S X .25" W  
S-ARC North = 31.10  
S-ARC South = 34.02

Quality Coring: None.

Comments:

# Primary Pile # 73

Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
04/05/93	2	XL-24	152		5.72		26.57		04/06/93			40	35.5	12.7%

Total Drill Time = 5.72 Hours  
Average Penetration Rate = 26.57 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Vertically Information  
At Full Depth = 5.72" N X 1.91" W  
S-ARC North = 34.02  
S-ARC South = 14.11

Quality Coring: 6" Joint 73/74 to 24' on 5/01/93

Comments:

Secondary Pile # 74  
Area "A"

CUT - OFF WALL EXCAVATION										CUT - OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
02/20/93	2	DHD130A	152		23.73		6.41		02/22/93			41.5	35.5	16.9%

Total Drill Time = 23.73 Hours  
Average Penetration Rate = 6.41 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = .65° S X 4.85° E  
S-ARC North = 14.11  
S-ARC South = 10.85

Quality Coring: None.

Comments:

Primary Pile # 75  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
05/08/93	1	DHD130A	151		12.83			11.77	05/10/93			40	35.3	13.4%

Total Drill Time = 12.83 Hours  
Average Penetration Rate = 11.77 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 8.30° S X 1.5° W  
S-ARC North = 10.85  
S-ARC South = 42.62

Quality Coring: None.

Comments:

Secondary Pile # 76  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
03/31/93	2	XL-24	152		7.25		20.97		04/01/93			43	35.5	21.1%

Total Drill Time = 7.25 Hours  
Average Penetration Rate = 20.97 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 7.94" N X 5.72" E  
S-ARC North = 42.82  
S-ARC South = 8.51

Quality Coring: None.

Comments: Deficient Joint Width at Full Depth, Corrected with Conforming Pile.

Primary Pile # 77  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
05/20/93	1	DHD130A	151		10.42			14.49	05/21/93			38	35.3	7.8%

Total Drill Time = 10.42 Hours  
Average Penetration Rate = 14.49 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = .5" S X 0" E/W  
S-ARC North = 8.51  
S-ARC South = 22.50

Quality Coring: None.

Comments:

Secondary Pile # 78  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
04/22/93	1	DHD130A	152		15.92		9.55		04/22/93			42.5	35.5	19.7%

Total Drill Time = 15.92 Hours  
Average Penetration Rate = 9.55 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 3.02" S X 4.03" W  
S-ARC North = 22.50  
S-ARC South = 28.85

Quality Coring: None.

Comments:

Primary Pile # 79  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
06/16/93	2	DHD130A	150		11.08		13.54		06/16/93			40	35.0	14.2%

Total Drill Time = 11.08 Hours  
Average Penetration Rate = 13.54 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1.13" S X 0" E/W  
S-ARC North = 28.85  
S-ARC South = 29.56

Quality Coring: None.

Comments:

Secondary Pile # 80  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment		Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
	Rig #	Excavation Method	Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
03/11/93	2	CLUSTER	62		5.92		10.47		03/16/93		19		14.5	31.2%	
04/15/93	1		52	52					04/15/93		12		12.1	-1.2%	
05/28/93	1	DHD130A	150	62	7.83	3.17	11.24	19.56	05/28/93			40	35.0	14.2%	

Total Drill Time = 13.75 Hours  
Average Penetration Rate = 10.91 Feet / Hour  
  
Total Redrill Time = 3.17 Hours  
Average Penetration Rate = 35.96 Feet / Hour

Verticality Information  
At Full Depth = 1" N X 1.76" E  
S-ARC North = 29.56  
S-ARC South = 33.89

Quality Coring: None.

Comments: Lost cluster bit in hole 4/15/93

Primary Pile # 81  
Area "A"

CUT - OFF WALL EXCAVATION										CUT - OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non - Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
06/04/93	2	DHD130A		150		10.17		14.75		06/04/93			41.5	35.0	18.5%

Total Drill Time = 10.17 Hours  
Average Penetration Rate = 14.75 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 6.54" N X 2" E  
S-ARC North = 33.89  
S-ARC South = 16.17

Quality Coring: None.

Comments:

Secondary Pile # 82  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION						
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak		
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)								
11/09/92	1	DHD130A	35		1.68		20.83			11/11/92	6		8.2	-26.6%		
11/17/92	1	DHD130A	40	35	2.00	1.55	2.50			11/18/92	12		9.3	28.5%		
12/04/92	1	DHD130A	151	40	11.84	1.83	9.38			12/08/92		62	35.3	75.8%		

Total Drill Time = 15.52 Hours  
Average Penetration Rate = 9.73 Feet / Hour  
  
Total Redrill Time = 3.38 Hours  
Average Penetration Rate = 22.19 Feet / Hour

Verticality Information  
At Full Depth = .38" N X 0" E/W  
S--ARC North = 16.17  
S--ARC South = 31.52

Quality Coring: Cored by COE 1/20/93

Comments: At 32' connected with old Soletanche panel

Primary Pile # 83  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION						
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)								
06/08/93	2	DHD130A	150		11.83		12.68			06/08/93			41.5	35.0	18.5%	

Total Drill Time = 11.83 Hours  
Average Penetration Rate = 12.68 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 4.03" N X 1.5" E  
S--ARC North = 31.52  
S--ARC South = No Overlap at Full Depth, Corrected with Conforming Pile.

Quality Coring: NS/NQ core drilled to 59.8' in pile 83 and exited into pile 84 which was continued to 156.6' depth.

Comments:

Secondary Pile # 84  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
02/02/93	1	DHD130A	151		12.67			11.92	02/04/93		44		35.3	24.8%
02/05/93	1		38			38			02/06/93		16		8.9	80.3%
06/02/93	1	DHD130A	150			151	7.75	19.48	06/02/93			41	35.0	17.0%

Total Drill Time = 12.67 Hours  
Average Penetration Rate = 11.84 Feet / Hour  
  
Total Redrill Time = 7.75 Hours  
Average Penetration Rate = 24.39 Feet / Hour

Verticality Information  
At Full Depth = 6.04" S X 9.31" W  
S-ARC North = No Overlap at Full Depth, Corrected with Conforming Pile.  
S-ARC South = 32.04

Quality Coring: See pile 83

Comments:

Primary Pile # 85  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
06/17/93	2	DHD130A	150		11.58		12.95		06/18/93			41	35.0	17.0%

Total Drill Time = 11.58 Hours  
Average Penetration Rate = 12.95 Feet / Hour  
  
Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1.76" S X 6.04" W  
S-ARC North = 32.04  
S-ARC South = 28.98

Quality Coring: None.

Comments:

Secondary Pile # 86  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
05/25/93	1	XL-24	150		7.09		21.16		05/26/93			43.5	35.0	24.2%

Total Drill Time = 7.09 Hours  
Average Penetration Rate = 21.16 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Vertically Information  
At Full Depth = 0° N/S X 3.52° W  
S-ARC North = 28.98  
S-ARC South = 20.01

Quality Coring: None.

Comments:

Primary Pile # 87  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
06/24/93	2	DHD130A	150		11.08		13.54		06/24/93			41	35.0	17.0%

Total Drill Time = 11.08 Hours  
Average Penetration Rate = 13.54 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Vertically Information  
At Full Depth = 3.78° S X 1.76° E  
S-ARC North = 20.01  
S-ARC South = 19.76

Quality Coring: None.

Comments:



Secondary Pile # 88  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
04/08/93	2	DHD130A	152		10.00		15.20		04/10/93			48	35.5	35.2%

Total Drill Time = 10.00 Hours  
Average Penetration Rate = 15.20 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 8.1" S X 4.13" E  
S-ARC North = 19.76  
S-ARC South = 30.20

Quality Coring: None.

Comments:

Primary Pile # 89  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
06/22/93	2	DHD 130A	150		9.75		15.38		06/23/93			41	35.0	17.0%

Total Drill Time = 9.75 Hours  
Average Penetration Rate = 15.38 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 5.54" S X 3.52" E  
S-ARC North = 30.20  
S-ARC South = 27.35

Quality Coring: None.

Comments:

Secondary Pile # 90  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Redrill (HRS)	Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
02/17/93	2	DHD130A		34		1.25		27.20		02/18/93		10		7.9	26.0%
03/02/93	1	CLUSTER		92	34	12.00	0.50	4.83	68.00	03/02/93		54		21.5	151.4%
06/11/93	2	DHD130A		150	92	6.41	5.33	9.05	17.26	06/12/93			40.5	35.0	15.6%

Total Drill Time = 19.66 Hours  
Average Penetration Rate = 7.53 Feet / Hour

Total Redrill Time = 5.83 Hours  
Average Penetration Rate = 21.61 Feet / Hour

Verticality Information  
At Full Depth = 5.03° S X 5.54° E  
S-ARC North = 27.35  
S-ARC South = 38.69

Quality Coring: None.

Comments:

Primary Pile # 91  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Redrill (HRS)	Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
06/25/93	2	DHD130A	150		10.17		14.75		06/25/93				42.5	35.0	21.3%

Total Drill Time = 10.17 Hours  
Average Penetration Rate = 14.75 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 5.03° N X 2.51° E  
S-ARC North = 38.69  
S-ARC South = 20.48

Quality Coring: None.

Comments:

CUT-OFF WALL EXCAVATION				CUT-OFF WALL CONSTRUCTION										
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time			Penetration Rate			Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)				
03/22/93	1	DHD130A	151		11.67			12.94			03/22/93	52	35.3	47.5%

Verticality Information

At Full Depth =	1.25" N X 1.25" W
S-ARC North =	20.48
S-ARC South =	27.44

**Comments:**

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment		Drill Footage		Pure Drill Time			Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
	Pig #	Excavation Method	Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
05/24/93	1	DHD130A	150		9.92			15.12		05/24/93			40.5	35.0	15.6%

Verticality Information	
At Full Depth =	1.75" N X 1.75" W
S-ARC North =	27.44
S-ARC South =	No Overlap at Full Depth, Corrected with Conforming Pile.

**Comments:**

Secondary Pile # 94  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
04/06/93	2	DHD130A	152		11.58		13.13		04/06/93			46	35.5	29.6%

Total Drill Time = 11.58 Hours  
Average Penetration Rate = 13.13 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Vertically Information  
At Full Depth = 10.5" S X 12.71" E  
S-ARC North = No Overlap at Full Depth, Connected with Conforming Pile.  
S-ARC South = 39.19

Quality Coring: None.

Comments:

Primary Pile # 95  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
05/11/93	1	DHD130A	153		11.17		13.70		05/12/93			40	35.7	12.0%

Total Drill Time = 11.17 Hours  
Average Penetration Rate = 13.70 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Vertically Information  
At Full Depth = 2.77" N X 4.03" E  
S-ARC North = 39.19  
S-ARC South = 23.57

Quality Coring: None.

Comments:

Secondary Pile # 96  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
02/12/93	2	DHD130A	151		21.98			6.87				54.5	35.3	54.6%

Secondary Pile # 98  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
03/08/93	2	DHD130A	153		18.50		8.27		03/10/93			47	35.7	31.5%

CUT - OFF WALL EXCAVATION				CUT - OFF WALL CONSTRUCTION									
Drilling Date	Equipment	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
		Excavation Method	Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)						
03/26/93	1	DHD130A	151		10.33		14.62	03/26/93			48	35.3	36.1%

Total Redrill Time =  
Average Penetration Rate =  
None

**Quality Coring: None.**

Primary Pile # 101  
Area "A"

CUT-OFF WALL EXCAVATION														CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak				
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)										
05/27/93	1	DHD130A		150		9.50		15.79	05/27/93			40	35.0	14.2%				

**Total Redrill Time =**

**Average Penetration Rate =**

**None**

**Quality Coring: None.**

**Comments:**

Secondary Pile # 102  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION									
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate (FT/Hr)	Drill (FT/Hr)	Redrill (FT/Hr)	Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak				
11/09/92	1	DHD130A	60	60	2.75	0.08	21.82	25.00	25.00	11/09/92		22		14.0	57.0%				
11/17/92	1	DHD130A	62	62	0.08	0.08	25.00	12.69	1.85	11/17/92	LEFT OPEN	10.5		14.5	-27.5%				
11/23/92	2	DHD130A	146	146	6.62	0.80	6.25	3.20	3.20	03/03/93				35.3	19.1%				
03/03/93	1	CLUSTER	151	146	0.80														

Total Drill Time = 10.25 Hours  
Average Penetration Rate = 14.73 Feet / Hour  
  
Total Redrill Time = 7.45 Hours  
Average Penetration Rate = 35.97 Feet / Hour

Verticality Information  
At Full Depth = 1.9' S X 0' E/W  
S--ARC North = 14.47  
S--ARC South = 29.35

Quality Coring: None.

Comments:

Primary Pile # 103  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION									
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate (FT/Hr)	Drill (FT/Hr)	Redrill (FT/Hr)	Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak				
06/03/93	2	DHD130A	150		9.83		15.26			06/04/93			41	35.0	17.0%				

Total Drill Time = 9.83 Hours  
Average Penetration Rate = 15.26 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 0' N/S X 0' E/W  
S--ARC North = 29.35  
S--ARC South = 21.10

Quality Coring: None.

Comments:



Secondary Pile # 104  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
04/16/93	2	DHD130A	155		15.93		9.73		04/17/93			56	36.2	54.7%

Total Drill Time = 15.93 Hours  
Average Penetration Rate = 9.73 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 3.65° S X .66° E  
S-ARC North = 21.10  
S-ARC South = 33.59

Quality Coring: None.

Comments:

Primary Pile # 105  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
05/10/93	1	DHD130A	153		11.33		13.50		05/12/93			40	35.7	12.0%

Total Drill Time = 11.33 Hours  
Average Penetration Rate = 13.50 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1.76° N X 1.5° W  
S-ARC North = 33.59  
S-ARC South = No Overlap at Full Depth, Corrected with Conforming Pile.

Quality Coring: None.

Comments:

Secondary Pile # 106  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
04/21/93	1	DHD130A	152		14.15		10.74		04/21/93			45	35.5	26.8%

Total Drill Time = 14.15 Hours  
Average Penetration Rate = 10.74 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 9.78" S X 8.15" W  
S-ARC North = No Overlap at Full Depth, Connected with Conforming Pile.  
S-ARC South = 38.97

Quality Coring: None.

Comments:

Primary Pile # 107  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
05/20/93	1	DHD130A	150		12.08		12.42		05/20/93			40	35.0	14.2%

Total Drill Time = 12.08 Hours  
Average Penetration Rate = 12.42 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1.51" N X 2.27" E  
S-ARC North = 38.97  
S-ARC South = 26.21

Quality Coring: None.

Comments:

Secondary Pile # 108  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
11/11/92	1	DHD130A	37		1.75		21.14			11/11/92		10		8.6	15.7%
11/20/92	1	DHD130A	64		2.75		9.82	2.08		11/21/92		14		14.9	-6.3%
03/09/93	2	DHD130A	152		12.75		7.92	6.90	8.08	03/10/93			42.5	35.5	19.7%

Total Drill Time = 17.25 Hours  
Average Penetration Rate = 8.81 Feet / Hour

Total Redrill Time = 10.00 Hours  
Average Penetration Rate = 10.10 Feet / Hour

Vertically Information  
At Full Depth = 1.3" N X .65" E  
S--ARC North = 26.21  
S--ARC South = 26.69

Quality Coring: None.

Comments:

Primary Pile # 109  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
05/14/93	1	DHD130A	150		11.58			12.95		05/15/93			40	35.0	14.2%

Total Drill Time = 11.58 Hours  
Average Penetration Rate = 12.95 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Vertically Information  
At Full Depth = 1.28" N X .5" W  
S--ARC North = 26.69  
S--ARC South = 16.68

Quality Coring: None.

Comments:

Secondary Pile # 110  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
04/01/93	2	XL-24	152		7.05		21.56		04/02/93			53	35.5	49.3%

Total Drill Time = 7.05 Hours  
Average Penetration Rate = 21.56 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 3.44" S X 8.13" E  
S-ARC North = 16.68  
S-ARC South = 34.66

Quality Coring: None.

Comments:

Primary Pile # 111  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
06/01/93	1	DHD130A	150		9.17		16.36		06/01/93			41	35.0	17.0%

Total Drill Time = 9.17 Hours  
Average Penetration Rate = 16.36 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 3" N X 5" E  
S-ARC North = 34.66  
S-ARC South = 18.48

Quality Coring: None.

Comments:

## Area "A"

## CUT-OFF WALL CONSTRUCTION

Total Redrill Time =  
Average Penetration Rate =  
None

At Full Depth =

**Comments:**

## Area "A"

## CUT-OFF WALL CONSTRUCTION

Total Redrill Time =  
Average Penetration Rate =  
None

At Fall Don'ts -

**Comments:**

Secondary Pile # 114  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
03/19/93	1	DHD130A	151		10.92		13.83		03/20/93			49	35.3	39.0%

Total Drill Time = 10.92 Hours  
Average Penetration Rate = 13.83 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 0° N/S X 4.5° E  
S-ARC North = 24.76  
S-ARC South = 28.31

Quality Coring: None.

Comments:

Primary Pile # 115  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time			Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
03/27/93	1	XL-24	153		7.17			21.34		03/29/93			42.5	35.7	19.0%

Total Drill Time = 7.17 Hours  
Average Penetration Rate = 21.34 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1.27° N X 1.91° E  
S-ARC North = 28.31  
S-ARC South = 27.34

Quality Coring: None.

Comments:

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION							
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)				
02/26/93	1	DHD130A	154		9.91		15.54		02/26/93	51	36.0	41.8%

Total Redrill Time =  
Average Penetration Rate =  
None

**Quality Coring: None.**

Primary Pile # 117  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date (CU.YD.)	GROUT (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
05/21/93	1	DHD130A	150		10.67			14.06		05/21/93			41	35.0	17.0%

Total Redrill Time =  
Average Penetration Rate =  
None

Quality Coring: None.

Comments:

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
02/13/93	2	DHD130A		151		16.37		9.22				54	35.3	53.1%

Total Redrill Time =  
Average Penetration Rate =  
None

Verticality Information

At Full Depth =	.63" N X 4.69" E
S-APC North =	32.82
S-APC South =	18.11

**Comments:**

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION								
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Non-Spec. Concrete (CU.YD.)	Grout (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)					
05/08/93	2	DHID130A	151		13.33		11.33				42	35.3	19.1%

Total Redrill Time =  
Average Penetration Rate =  
None

4" S X 1.5" W	
At Full Depth =	
S - APC North =	18.11
S - APC South =	38.75

**Comments:**



Secondary Pile # 120  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
02/23/93	1	DHD130A	40		1.16		34.48		02/23/93			10	ION	9.3	7.1%
03/03/93	2	DHD130A	78	40	5.08	4.00	7.48	10.00							
03/17/93	1	DHD130A	151	78	6.83	1.83	10.69	42.62	03/17/93		NO	INFORMAT	51	35.3	44.6%

Total Drill Time = 13.07 Hours  
Average Penetration Rate = 11.55 Feet / Hour  
  
Total Redrill Time = 5.83 Hours  
Average Penetration Rate = 20.24 Feet / Hour

Verticality Information  
At Full Depth = 5.87" N X 0" E/W  
S--ARC North = 38.75  
S--ARC South = 16.66

Quality Coring: None.

Comments:

Primary Pile # 121  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
06/07/93	2	DHD130A	150		12.08		12.42		06/08/93			40.5	35.0	15.6%	

Total Drill Time = 12.08 Hours  
Average Penetration Rate = 12.42 Feet / Hour  
  
Total Redrill Time = None  
Average Penetration Rate = None

Verticality Information  
At Full Depth = 0" N/S X 2.75" E  
S--ARC North = 16.66  
S--ARC South = 33.51

Quality Coring: None.

Comments:

Secondary Pile # 122  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT./HR)	Redrill (FT./HR)							
03/24/93	1	DHD130A	151		22.10			6.83		03/25/93			50.5	35.3	43.2%

Total Drill Time = 22.10 Hours  
Average Penetration Rate = 6.83 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 5.41" N X 5.41" E  
S-ARC North = 33.51  
S-ARC South = 15.31

Quality Coring: None.

Comments: Connection made with pile 144

Primary Pile # 123  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
06/04/93	2	DHD130A	150		11.08			13.54		06/05/93			40	35.0	14.2%

Total Drill Time = 11.08 Hours  
Average Penetration Rate = 13.54 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1" S X 2" E  
S-ARC North = 15.31  
S-ARC South = 26.41

Quality Coring: None.

Comments:

Secondary Pile # 124  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION						
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)								
11/03/92	1	DHD130A	27		1.35		20.00									
11/16/92	1	DHD130A	151		11.50	1.00	10.78	27.00		11/17/93	SUMP	PILE	44	35.3	24.8%	

Total Drill Time = 12.85 Hours  
Average Penetration Rate = 11.75 Feet / Hour  
  
Total Redrill Time = 1.00 Hours  
Average Penetration Rate = 27.00 Feet / Hour

Verticality Information  
At Full Depth = 1" S X 1.5" W  
S--ARC North = 26.41  
S--ARC South = 29.53

Quality Coring: None.

Comments:

Primary Pile # 125  
Area "A"

Area A

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION						
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)								
06/12/93	2	DHD130A		150		10.59		14.16		06/12/93			39.5	35.0	12.8%	

Total Drill Time = 10.59 Hours  
Average Penetration Rate = 14.16 Feet / Hour  
  
Total Redrill Time = None  
Average Penetration Rate = None

Verticality Information  
At Full Depth = 1" N X 1" W  
S--ARC North = 29.53  
S--ARC South = 27.27

Quality Coring: None.

Comments:

Secondary Pile # 126  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
05/24/93	1	DHD130A	153		9.59		15.95		05/25/93			47	35.7	31.5%

Total Drill Time = 9.59 Hours  
Average Penetration Rate = 15.95 Feet / Hour

Total Redrill Time = None

Average Penetration Rate =

Verticality Information

At Full Depth = 1.5" N X 3.6" W  
S-ARC North = 27.27  
S-ARC South = 35.30

Quality Coring: None.

Comments:

Primary Pile # 127  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
06/16/93	2	DHD130A	150		10.08		14.88		06/17/93			40	35.0	14.2%

Total Drill Time = 10.08 Hours  
Average Penetration Rate = 14.88 Feet / Hour

Total Redrill Time = None

Average Penetration Rate =

Verticality Information

At Full Depth = 8.56" N X .5" W  
S-ARC North = 35.30  
S-ARC South = 17.99

Quality Coring: None.

Comments:

Secondary Pile # 128  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
02/23/93	1	DHD130A	38		1.67		22.75		02/23/93		12		8.9	35.2%	
04/16/93	2	DHD130A	152	38	9.83	1.10	11.60	34.55	04/17/93			47	35.5	32.4%	

Total Drill Time = 11.50 Hours  
Average Penetration Rate = 13.22 Feet / Hour

Total Redrill Time = 1.10 Hours  
Average Penetration Rate = 34.55 Feet / Hour

Vertically Information  
At Full Depth = 3.8" N X 6.35" W  
S-ARC North = 17.99  
S-ARC South = 24.52

Quality Coring: None.

Comments:

Primary Pile # 129  
Area "A"

Area A

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak			
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
06/21/93	2	DHD130A	150		11.50		13.04		06/22/93		40.5	35.0	15.6%		

Total Drill Time = 11.50 Hours  
Average Penetration Rate = 13.04 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Vertically Information  
At Full Depth = 2.52" N X 2.77" W  
S-ARC North = 24.52  
S-ARC South = 15.83

Quality Coring: None.

Comments:

Secondary Pile # 130  
Area "A"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate (FT / HR)	Redrill (FT / HR)	Overbreak
02/10/93	2	DHD130A	152		11.24		13.52		28.2%

Total Drill Time = 11.24 Hours  
Average Penetration Rate = 13.52 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 3.65" S X .79" E  
S--ARC North = 15.83  
S--ARC South = 28.92

Quality Coring: None.

Comments:

Primary Pile # 131  
Area "A"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate (FT / HR)	Redrill (FT / HR)	Overbreak
06/19/93	2	DHD130A	150		11.50		13.04		14.2%

Total Drill Time = 11.50 Hours  
Average Penetration Rate = 13.04 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 2.01" S X 2.52" E  
S--ARC North = 28.92  
S--ARC South = 26.02

Quality Coring: None.

Comments:

Secondary Pile # 132  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
03/14/93	1	DHD130A	153		14.35		10.66		03/15/93			40	35.7	12.0%

Total Drill Time = 14.35 Hours  
Average Penetration Rate = 10.66 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 2.5" S X 3.15" E  
S-ARC North = 26.02  
S-ARC South = 30.08

Quality Coring: None.

Comments:

Primary Pile # 133  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
05/28/93	1	DHD130A	153		7.58		20.18		05/29/93			39	35.7	9.2%

Total Drill Time = 7.58 Hours  
Average Penetration Rate = 20.18 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 0" N/S X 1.5" E  
S-ARC North = 30.08  
S-ARC South = 26.98

Quality Coring: None.

Comments:

Secondary Pile # 134  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
11/21/92	1	DHD130A	31		1.83		16.94			11/23/94	13	7	38.5	7.2	38.1%
11/23/92	1	DHD130A	62		1.50		41.33			12/07/92				14.5	9.2%
12/03/92	1	DHD130A	151	62	7.33	3.25	12.14	19.08						35.3	

Total Drill Time = 10.66 Hours  
Average Penetration Rate = 17.07 Feet / Hour

Total Redrill Time = 3.25 Hours  
Average Penetration Rate = 19.08 Feet / Hour

Vertically Information  
At Full Depth = 25° N X .63° W  
S-ARC North = 26.98  
S-ARC South = 33.87

Quality Coring: None.

Comments:

Primary Pile # 135  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
05/13/93	2	DHD130A	150		12.33		12.17		05/13/93			40	35.0	14.2%	

Total Drill Time = 12.33 Hours  
Average Penetration Rate = 12.17 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate = None

Vertically Information  
At Full Depth = 6° N X 2.5° E  
S-ARC North = 33.87  
S-ARC South = Deficient Joint Width at Full Depth, Corrected with Conforming Pile.

Quality Coring: None.

Comments:



CUT-OFF WALL EXCAVATION				CUT-OFF WALL CONSTRUCTION										
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
01/25/93	1	DHD130A	151		16.07			9.40		01/28/93		43	35.3	21.9%

Total Redrill Time =  
Average Penetration Rate =  
None

Quality Coring: NQ 0' TO 152'. (2/6/93)

Primary Pile # 137  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
06/15/93	2	DHD130A	150		12.33		12.17		06/16/93			40	35.0	14.2%

Total Redrill Time =  
Average Penetration Rate =  
None

**Quality Coring: None.**

Comments:

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
11/13/92	1	DHD130A	151		12.28		12.30		11/14/92			41	35.3	16.3%

Total Drill Time = 12.28 Hours  
Average Penetration Rate = 1230 Feet / Hour

Total Redrill Time = None

0° N/S X 0° E/W	
At Full Depth =	22.27
S-ARC North =	32.66
S-ARC South =	

Quality Coring: None.

**Comments:** Old Soletanche panel

CUT-OFF WALL EXCAVATION				CUT-OFF WALL CONSTRUCTION										
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Pure Drill Time			Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
				Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT./HR)	Redrill (FT./HR)						
06/02/93	2	DHD130A	150		11.09		13.53		06/03/93			41	35.0	17.0%

Total Drill Time = 11.09 Hours  
Average Penetration Rate = 13.53 Feet / Hour

Total Redrill Time = None

Verticality Information

At Full Depth =	4.53" N X .63" W
S-ARC North =	32.66
S-ARC South =	16.71

**Quality Coring: None.**

Comments:

Secondary Pile # 140  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION						
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time			Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Redrill (HFS)	Drill (FT / HR)	Redrill (FT / HR)							
02/08/93	1	DHD130A	32		3.41	14.50	1.16	9.38	27.59	02/09/93		8	43	7.5	7.1%	
03/04/93	2	DHD130A	153					8.34		03/04/93				35.7	20.4%	

Total Drill Time = 17.91 Hours  
Average Penetration Rate = 8.54 Feet / Hour  
  
Total Redrill Time = 1.16 Hours  
Average Penetration Rate = 27.59 Feet / Hour

Verticality Information  
At Full Depth = 1.3" S X 3.6" W  
S-ARC North = 16.71  
S-ARC South = 24.13

Quality Coring: Joint 140/14 1; 6" core; 30.3' ; 9/22/93

Comments:

Primary Pile # 141  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION						
Drilling Date	Equipment		Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
	Rig #	Excavation Method	Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)								
04/05/93	1	DHD130A	153		8.71			17.57		04/06/93			41.5	35.7	16.2%	

Total Drill Time = 8.71 Hours  
Average Penetration Rate = 17.57 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 2.84" S X 0" E/W  
S-ARC North = 24.13  
S-ARC South = 24.41

Quality Coring: None.

Comments:

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Fig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak		
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
03/18/93	1	DHD130A	153		14.53		10.53			50	35.7	39.9%		

Total Redrill Time =  
Average Penetration Rate =  
None

**Quality Coring: None.**

Primary Pile # 143  
Area "A"

CUT - OFF WALL EXCAVATION										CUT - OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non - Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
05/24/93	2	DHD130A	150		10.09		14.87		05/25/93			40	35.0	14.2%	

Total Redrill Time =  
Average Penetration Rate =  
None

**Quality Coring: None.**

**Comments:**

Secondary Pile # 144  
Area "A"

Area A

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
03/27/93	1	XL-24	151		5.50		27.45		03/27/93			48	35.3	36.1%

Total Drill Time = 5.50 Hours  
Average Penetration Rate = 27.45 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1.25" N X 2.5" E  
S-ARC North = 20.62  
S-ARC South = 25.65

Quality Coring: None.

Comments: Connected with pile 122

Primary Pile # 145  
Area "A"

Area A

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
06/05/93	2	DHD130A	150		10.92			13.74	06/07/93			42	35.0	19.9%

Total Drill Time = 10.92 Hours  
Average Penetration Rate = 13.74 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = .5" N X 1.77" E  
S-ARC North = 25.65  
S-ARC South = 26.00

Quality Coring: None.

Comments:

Secondary Pile # 146  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
04/17/93	1	DHD130A	153		9.82		15.58		04/19/93			44	35.7	23.2%

Total Drill Time = 9.82 Hours  
Average Penetration Rate = 15.58 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 0° N/S X. 70° E  
S-ARC North = 26.00  
S-ARC South = 30.62

Quality Coring: None.

Comments:

Primary Pile # 147  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
05/26/93	1	XL-24	150		6.75		22.22		05/26/93			40	35.0	14.2%

Total Drill Time = 6.75 Hours  
Average Penetration Rate = 22.22 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 3° N X 1.5° W  
S-ARC North = 30.62  
S-ARC South = 19.72

Quality Coring: None.

Comments:

Secondary Pile # 148  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
04/08/93	1	DHD130A	152		10.16		14.96		04/08/93			46	35.5	29.6%

Total Drill Time = 10.16 Hours  
Average Penetration Rate = 14.96 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1.24" S X 1.86" E  
S-ARC North = 19.72  
S-ARC South = 34.32

Quality Coring: None.

Comments:

Primary Pile # 149  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
05/03/93	2	DHD130A	152		13.08		11.62		05/07/93			40.5	35.5	14.1%

Total Drill Time = 13.08 Hours  
Average Penetration Rate = 11.62 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 5.94" N X 4.82" W  
S-ARC North = 34.32  
S-ARC South = No Overlap at Full Depth, Corrected with Conforming Pile.

Quality Coring: None.

Comments:

CUT-OFF WALL EXCAVATION				CUT-OFF WALL CONSTRUCTION										
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	GROUT (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
03/31/93	1	DHD130A	152		11.20		13.57		04/02/93			43	35.5	21.1%

Total Redrill Time =  
Average Penetration Rate =  
None

**Quality Coring: None.**

Primary Pile # 151  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment	Pig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
				Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
06/01/93		2	DHD130A		90		5.75		15.65	06/01/93			24	21.0	14.2%

Total Drill Time = 5.75 Hours  
Average Penetration Rate = 15.65 Feet / Hour

**Total Redrill Time =**

**Average Penetration Rate =**

**None**

<b>Verticality Information</b>	
At Full Depth =	1" N X 0" EW
S-ARC North =	33.74
S-ARC South =	26.74

Quality Coring: None.

**Comments:**



CUT-OFF WALL EXCAVATION				CUT-OFF WALL CONSTRUCTION										
Drilling Date	Equipment	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
02/22/93	1	DHD130A	91		10.66		8.54		02/25/93			32	21.3	50.6%

Verticality Information	1.66" N X 5.63" W
At Full Depth =	26.74
S-ARC North =	22.30
S-ARC South =	

**Comments:**

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
05/19/93	2	DHD130A	90		8.42		10.69		05/20/93			24	21.0	14.2%

Vertically Information	1° S X 1.77° W
At Full Depth =	22.30
S-ARC North =	33.10
S-ARC South =	

**Comments:**

Secondary Pile # 154  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
03/15/93	1	DHD130A	91		9.10			10.00		03/16/93			29.5	21.3	38.8%

Total Drill Time = 9.10 Hours  
Average Penetration Rate = 10.00 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 4" N X 4" W  
S-ARC North = 33.10  
S-ARC South = 21.87

Quality Coring: None.

Comments:

Primary Pile # 155  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)		Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
06/23/93	2	DHD130A		90		6.50		13.85		06/23/93			25	21.0	19.0%

Total Drill Time = 6.50 Hours  
Average Penetration Rate = 13.85 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1.26" N X 1.01" E  
S-ARC North = 21.87  
S-ARC South = 23.35

Quality Coring: None.

Comments:

Secondary Pile # 156  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION			
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)					
04/19/93	1	XL-24	93		3.08		30.19		04/20/93		29	21.7	33.5%

Total Drill Time = 3.08 Hours  
Average Penetration Rate = 30.19 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1" S X 0" EW  
S-ARC North = 23.35  
S-ARC South = 27.45

Quality Coring: None.

Comments:

Primary Pile # 157  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
06/17/93	2	DHD130A	90		6.75		13.33		06/17/93		24	21.0	14.2%	

Total Drill Time = 6.75 Hours  
Average Penetration Rate = 13.33 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = .5" S X .5" E  
S-ARC North = 27.45  
S-ARC South = 29.53

Quality Coring: None.

Comments:

Secondary Pile # 158  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
05/08/93	2	DHD130A	90		8.50		10.59		05/10/93			25.5	21.0	21.3%
05/25/93	2	DHD130A		30		2.50	12.00		05/25/93			8	7.0	see comment

Total Drill Time = 8.50 Hours  
Average Penetration Rate = 7.06 Feet / Hour

Total Redrill Time = 2.50 Hours  
Average Penetration Rate = 12.00 Feet / Hour

Verticality Information  
At Full Depth = 1.55" N X .52" W  
S-ARC North = 29.53  
S-ARC South = 11.33

Quality Coring: None.

Comments: Accidently redrilled 30' on 5/25/93

Primary Pile # 159  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
06/22/93	2	DHD130A	90		6.08		14.80		06/22/93			24	21.0	14.2%

Total Drill Time = 6.08 Hours  
Average Penetration Rate = 14.80 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 6.57" S X 1.26" W  
S-ARC North = 11.33  
S-ARC South = 25.97

Quality Coring: None.

Comments:

Secondary Pile # 160  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
04/14/93	1	DHD130A	93		8.75		10.63		04/14/93			26	21.7	19.7%

Total Drill Time = 8.75 Hours  
Average Penetration Rate = 10.63 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Vertically Information  
At Full Depth = 6.75" S X 3" E  
S-ARC North = 25.97  
S-ARC South = 37.08

Quality Coring: None.

Comments:

Primary Pile # 161  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
05/17/93	1	DHD130A	90		7.63		11.80		05/18/93			25.5	21.0	21.3%	

Total Drill Time = 7.63 Hours  
Average Penetration Rate = 11.80 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Vertically Information  
At Full Depth = 1.83" N X 0" E/W  
S-ARC North = 37.08  
S-ARC South = 14.85

Quality Coring: None.

Comments:

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
04/03/93	1	DHD130A	93		6.91		13.46		04/05/93			29	21.7	33.5%

Total Redrill Time =  
Average Penetration Rate =  
None

Veracity Information

At Full Depth =	4.8" S X 3.29" E
S-ARC North =	14.85
S-ARC South =	31.57

**Comments:**

CUT-OFF WALL EXCAVATION				CUT-OFF WALL CONSTRUCTION										
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
06/12/93	2	DHD130A	90		6.58		13.68		06/12/93			23	21.0	9.4%

Total Redrill Time =  
Average Penetration Rate =  
None

Verticillity Information

At Full Depth =	.76° S X .76° W
S-ARC North =	31.57
S-ARC South =	26.18

**Comments:**

Secondary Pile # 164  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
03/29/93	1	DHD130A	93		8.66		10.74		03/30/93			32	21.7	47.3%

Total Drill Time = 8.66 Hours  
Average Penetration Rate = 10.74 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Vertically Information  
At Full Depth = 1.03" S X 1.81" E  
S-ARC North = 26.18  
S-ARC South = 28.12

Quality Coring: NX/NQ to 82' on 8/14/93.

Comments:

Primary Pile # 165  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
05/12/93	2	DHD130A	90		6.42			14.02	05/12/93			24	21.0	14.2%

Total Drill Time = 6.42 Hours  
Average Penetration Rate = 14.02 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Vertically Information  
At Full Depth = 0" N/S X .26" E  
S-ARC North = 28.12  
S-ARC South = 29.50

Quality Coring: None.

Comments:

Secondary Pile # 166  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
03/22/93	1	DHD130A	91		15.00		6.07		03/23/93			28	21.3	31.8%

Total Drill Time = 15.00 Hours  
Average Penetration Rate = 6.07 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 2.02" N X 0" E/W  
S-ARC North = 29.50  
S-ARC South = 24.56

Quality Coring: None.

Comments:

Primary Pile # 167  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
05/27/93	2	DHD130A	90		5.83		15.44		05/27/93			24	21.0	14.2%

Total Drill Time = 5.83 Hours  
Average Penetration Rate = 15.44 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = .51" N X 0" E/W  
S-ARC North = 24.56  
S-ARC South = 27.43

Quality Coring: None.

Comments:



Secondary Pile # 168  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
03/18/93	1	DHD130A	92		7.24			12.71	03/18/93			26.5	21.5	23.3%

Total Drill Time = 7.24 Hours  
Average Penetration Rate = 12.71 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1" N X 1" E  
S-ARC North = 27.43  
S-ARC South = 27.78

Quality Coring: None.

Comments:

Primary Pile # 169  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
06/07/93	2	DHD130A	90		6.00		15.00		06/06/93			24	21.0	14.2%

Total Drill Time = 6.00 Hours  
Average Penetration Rate = 15.00 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1.76" N X 0" E/W  
S-ARC North = 27.78  
S-ARC South = 30.44

Quality Coring: None.

Comments:

Secondary Pile # 170  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
03/12/93	1	DHD130A	92		10.63		8.65		03/13/93			27	21.5	25.7%

Total Drill Time = 10.63 Hours  
Average Penetration Rate = 8.65 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 4.5" N X 0" EW  
S-ARC North = 30.44  
S-ARC South = 19.6

Quality Coring: None.

Comments:

Primary Pile # 171  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
05/06/93	2	DHD130A	90		5.00		18.00		05/06/93			24	21.0	14.2%

Total Drill Time = 5.00 Hours  
Average Penetration Rate = 18.00 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 0" N X 0.5" W  
S-ARC North = 19.6  
S-ARC South = 25.24

Quality Coring: None.

Comments:

# Why

## CLIT-OFF WALL EXCAVATION

Total Redrill Time =  
Average Penetration Rate =  
None

At Full Depth =  
S-ARC North =  
S-ARC South =

**Comments:**

Area "A"

## CUT-OFF WALL EXCAVATION

Total Redrill Time =  
Average Penetration Rate =  
None

At Full Depth =  
S-ARC North =  
S-ARC South =

**Comments:**

Secondary Pile # 174  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time			Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
02/01/93	2	DHD130A	91		5.50		16.55			02/02/93			33	21.3	55.3%

Total Drill Time = 5.50 Hours  
Average Penetration Rate = 16.55 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Vertically Information  
At Full Depth = .75" N X 1" W  
S-ARC North = 24.57  
S-ARC South = 25.69

Quality Coring: NX/NQ to 92' on 2/12/93

Comments:

Primary Pile # 175  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
06/03/93	1	DHD130A		90		7.75		11.61	06/03/93			24	21.0	14.2%

Total Drill Time = 7.75 Hours  
Average Penetration Rate = 11.61 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Vertically Information  
At Full Depth = 0" N/S X .25" W  
S-ARC North = 25.69  
S-ARC South = 27.47

Quality Coring: None.

Comments:

Secondary Pile # 176  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
03/16/93	1	DHD130A	93		10.40			8.94		03/16/93			30	21.7	38.1%

Total Drill Time = 10.40 Hours  
Average Penetration Rate = 8.94 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = .5" N X .5" W  
S-ARC North = 27.47  
S-ARC South = 26.03

Quality Coring: None.

Comments:

Primary Pile # 177  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
06/14/93	2	DHD130A	90		5.00			18.00	06/14/93			24	21.0	14.2%

Total Drill Time = 5.00 Hours  
Average Penetration Rate = 18.00 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 0" N/S X 0" E/W  
S-ARC North = 26.03  
S-ARC South = 21.86

Quality Coring: None.

Comments:

Secondary Pile # 178  
Area "A"

Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
03/25/93	1	DHD130A	92		7.66		12.01		03/26/93		32		21.5	49.0%
04/21/93	1	DHD130A	93		0.10	2.58	10.00	35.66	04/21/93			27	21.7	24.3%

Total Drill Time = 7.76 Hours  
Average Penetration Rate = 11.98 Feet / Hour

Total Redrill Time = 2.58 Hours  
Average Penetration Rate = 35.66 Feet / Hour

Verticality Information  
At Full Depth = 3° S X 3° W  
S-ARC North = 21.88  
S-ARC South = 34.94

Quality Coring: None.

Comments:

Primary Pile # 179  
Area "A"

CUT-OFF WALL EXCAVATION														CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak				
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)										
05/13/93	2	DHD130A	90		7.34		12.26		05/13/93			24	21.0	14.2%				

Total Drill Time = 7.34 Hours  
Average Penetration Rate = 12.26 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 3.66° N X 0° E/W  
S-ARC North = 34.94  
S-ARC South = 25.05

Quality Coring: None.

Comments:

Secondary Pile # 180  
Area "A"

CUT - OFF WALL EXCAVATION										CUT - OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
05/04/93	2	DHD130A	92		6.75		13.63		05/04/93			27.5	21.5	28.0%

Total Drill Time = 6.75 Hours  
Average Penetration Rate = 13.63 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 2.5" N X 1" W  
S-ARC North = 25.05  
S-ARC South = 26.89

Quality Coring: None.

Comments:

Primary Pile # 181  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
05/28/93	2	DHD130A	90		5.83			15.44	05/29/93			24.5	21.0	16.6%

Total Drill Time = 5.83 Hours  
Average Penetration Rate = 15.44 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 2.78" N X 2" E  
S-ARC North = 26.89  
S-ARC South = 18.5

Quality Coring: None.

Comments:

Secondary Pile # 182  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
04/14/93	1	DHD130A	93		6.16		15.10		04/15/93			28	21.7	28.9%

Total Drill Time = 6.16 Hours  
Average Penetration Rate = 15.10 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 2.28° S X 3.29° E  
S-ARC North = 18.5  
S-ARC South = 30.29

Quality Coring: None.

Comments:

Primary Pile # 183  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
05/19/93	2	DHD130A	90		7.33		12.28		05/19/93			24	21.0	14.2%

Total Drill Time = 7.33 Hours  
Average Penetration Rate = 12.28 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = .5° N X .5° E  
S-ARC North = 30.29  
S-ARC South = 23.77

Quality Coring: None.

Comments:



CUT-OFF WALL EXCAVATION				CUT-OFF WALL CONSTRUCTION										
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
02/26/93	1	DHD130A	93		14.69		6.33		02/27/93			28	21.7	28.9%

Total Redrill Time =  
Average Penetration Rate =  
None

**Quality Coring: None.**

Primary Pile # 185  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
04/03/93	1	DHD130A	92		7.10		12.96		04/05/93			25.5	21.5	18.7%

Total Redrill Time =  
Average Penetration Rate =  
None

**Quality Coring: None.**

**Comments:**

Secondary Pile # 186  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
02/22/93	1	DHD130A	93		7.50		12.40		02/23/93			26	21.7	19.7%

Total Drill Time = 7.50 Hours  
Average Penetration Rate = 12.40 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 3° S X 9° W  
S-ARC North = 17.97  
S-ARC South = 29.77

Quality Coring: None.

Comments:

Primary Pile # 187  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
05/07/93	2	DHD130A	90		7.00		12.86		05/07/93			23	21.0	9.4%

Total Drill Time = 7.00 Hours  
Average Penetration Rate = 12.86 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = .5° N X 1.5° W  
S-ARC North = 29.77  
S-ARC South = 26.56

Quality Coring: None.

Comments:

Secondary Pile # 188  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
01/12/93 01/18/93	2	Test	13		15.80				01/21/93			28	21.5	30.3%
	1	DHD130A	92				5.82							

Total Drill Time = 15.80 Hours  
Average Penetration Rate = 6.65 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = .38° N X 1.75° W  
S-ARC North = 26.56  
S-ARC South = 26.04

Quality Coring: NQ FROM 0' TO 89.8', MOVED 8' NORTH OF CENTER OF PILE #188 TOOK 6" CORE FROM 0' TO 14.9'

Comments:

Primary Pile # 189  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
06/01/93	2	DHD130A	90		6.50			13.85	06/02/93			24	21.0	14.2%

Total Drill Time = 6.50 Hours  
Average Penetration Rate = 13.85 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 0° N/S X .76° E  
S-ARC North = 26.04  
S-ARC South = 32.3

Quality Coring: None.

Comments:

Secondary Pile # 190  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
03/17/93	1	DHD130A	90		8.57		10.50		03/18/93			26.5	21.0	26.1%

Total Drill Time = 8.57 Hours  
Average Penetration Rate = 10.50 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Vertically Information  
At Full Depth = 4.6" N X 3.07" W  
S-ARC North = 32.30  
S-ARC South = 18.26

Quality Coring: None.

Comments: Grout side stabilization test from pile 190 to pile 246

Primary Pile # 191  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
05/15/93	2	DHD 130A	90		8.84		10.19		05/15/93			23	21.0	9.4%

Total Drill Time = 8.84 Hours  
Average Penetration Rate = 10.19 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Vertically Information  
At Full Depth = .5" S X .5" W  
S-ARC North = 18.26  
S-ARC South = 30.75

Quality Coring: None.

Comments:

Secondary Pile # 192  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
03/29/93	1	DHD130A	92		6.00		15.33		03/29/93			27.5	21.5	28.0%

Total Drill Time = 6.00 Hours  
Average Penetration Rate = 15.33 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Vertically Information  
At Full Depth = 2.56" N X 2.3" W  
S-ARC North = 30.75  
S-ARC South = 22.06

Quality Coring: None.

Comments:

Primary Pile # 193  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
05/27/93	2	DHD130A	90		7.67		11.73		05/27/93			24	21.0	14.2%

Total Drill Time = 7.67 Hours  
Average Penetration Rate = 11.73 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Vertically Information  
At Full Depth = .5" S X 1.26" W  
S-ARC North = 22.06  
S-ARC South = 24.52

Quality Coring: None.

Comments:

CUT-OFF WALL EXCAVATION				CUT-OFF WALL CONSTRUCTION									
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time			Penetration Rate			Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)			
04/07/93	1	DHD130A	93		6.80			13.66			25	21.7	15.1%

Total Redrill Time =  
Average Penetration Rate =

**Quality Coring: None.**

Primary Pile # 195  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Non-Spec. Concrete (CU.YD.)	Grout (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT./HR)	Redrill (FT./HR)						
05/11/93	2	DHD130A	90		7.00			12.86			25	21.0	19.0%	

Total Redrill Time =  
Average Penetration Rate =  
None

**Quality Coring: None.**

**Comments:**

Secondary Pile # 196  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
	Pig #		Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
02/07/93	1	DHD130A	54		3.33		16.22							
04/16/93	1	DHD130A	93	54	4.25	3.00	9.18	18.00	04/17/93			27	21.7	24.3%

Total Drill Time = 7.58 Hours  
Average Penetration Rate = 12.27 Feet / Hour

Total Redrill Time = 3.00 Hours  
Average Penetration Rate = 18.00 Feet / Hour

Verticality Information  
At Full Depth = 0° N/S X 1.06° W  
S-ARC North = 24.79  
S-ARC South = 26.49

Quality Coring: None.

Comments:

Primary Pile # 197  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
	Pig #		Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
06/12/93	2	DHD130A	90		5.50		16.36		06/12/93			23	21.0	9.4%

Total Drill Time = 5.50 Hours  
Average Penetration Rate = 16.36 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 0° N/S X 2° E  
S-ARC North = 26.49  
S-ARC South = 26.33

Quality Coring: None.

Comments:

Secondary Pile # 198  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Redrill (FT / HR)	Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (H/R)							
04/21/93	1	DHD130A	93		9.58		9.71			04/22/93			39	21.7	79.6%

Total Drill Time = 9.58 Hours  
Average Penetration Rate = 9.71 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 0° N/S X 1.85° W  
S--ARC North = 26.33  
S--ARC South = 26.66

Quality Coring: None.

Comments:

Primary Pile # 199  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Redrill (FT / HR)	Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (HRS)							
06/02/93	2	DHD130A	90		5.84		15.41		06/02/93				24.5	21.0	16.6%

Total Drill Time = 5.84 Hours  
Average Penetration Rate = 15.41 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 0° N/S X 0° E/W  
S--ARC North = 26.66  
S--ARC South = 24.51

Quality Coring: None.

Comments:



Secondary Pile # 200  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION											
Equipment		Excavation Method		Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date		Grout (CU.YD.)		Non-Spec. Concrete (CU.YD.)		Spec. Concrete (CU.YD.)		Theoretical Volume (CU.YD.)		Overbreak	
Drilling Date	Rig #			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)												
01/25/93	2	DHD30		91	91	11.91	2.00	7.64	45.50	01/30/93		26						21.3		22.4%	
02/02/93	2	DHD30		91	91	91	1.67		54.49	02/02/94		4						21.3		-81.2%	
05/17/93	2	DHD30		55	91	91	5.58		16.31	05/18/93		16						12.8		24.6%	
05/25/93	2	DHD30		90	91	91				05/25/93						25.5		21.0		21.3%	

Total Drill Time = 11.91 Hours  
Average Penetration Rate = 4.53 Feet / Hour  
  
Total Redrill Time = 9.25 Hours  
Average Penetration Rate = 29.51 Feet / Hour

Verticality Information  
At Full Depth = 1.5" S X 1" W  
S-ARC North = 24.51  
S-ARC South = 31.15

Quality Coring: 6" Joint core 200/201; 31' deep; on 9/23/93

Comments:

Primary Pile # 201  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION									
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak					
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)											
06/24/93	2	DHD30	90		6.58		13.68		06/24/93			24	21.0	14.2%					

Total Drill Time = 6.58 Hours  
Average Penetration Rate = 13.68 Feet / Hour  
  
Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1.78" N X 1" W  
S-ARC North = 31.15  
S-ARC South = 23.34

Quality Coring: None.

Comments:

CUT-OFF WALL EXCAVATION				CUT-OFF WALL CONSTRUCTION										
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time			Penetration Rate			Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)				
05/05/93	2	DHD30	90		7.42			12.13			05/05/93	28	21.0	33.2%

Total Redrill Time =  
Average Penetration Rate =  
None

**Quality Coring: None.**

Primary Pile # 203  
Area "A"

CUT - OFF WALL EXCAVATION										CUT - OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
05/22/93	2	DHD30	90		5.17		17.41		05/22/93			25	21.0	19.0%

Total Redrill Time =  
Average Penetration Rate =  
None

**Quality Coring: None.**

**Comments:**

Secondary Pile # 204  
Area "A"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate Drill (FT / HR)	Redrill (FT / HR)	Overbreak
04/19/93	1	XL-24	93		2.92		31.85		24.3%

Total Drill Time = 2.92 Hours  
Average Penetration Rate = 31.85 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 4.55" N X 6.32" W  
S-ARC North = 30.24  
S-ARC South = 22.58

Quality Coring: None.

Comments:

Primary Pile # 205  
Area "A"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate Drill (FT / HR)	Redrill (FT / HR)	Overbreak
06/23/93	2	DHD30	90		7.00		12.86		19.0%

Total Drill Time = 7.00 Hours  
Average Penetration Rate = 12.86 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 2.53" N X 0" E/W  
S-ARC North = 22.58  
S-ARC South = 20.42

Quality Coring: None.

Comments:

Secondary Pile # 206  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment		Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
	Rig #	Excavation Method	Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
04/10/93	1	DHD30	93		5.40		17.22		04/12/93			30	21.7	38.1%

Total Drill Time = 5.40 Hours  
Average Penetration Rate = 17.22 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1.5" S X 1" E  
S-ARC North = 20.42  
S-ARC South = 34.48

Quality Coring: NX/NQ to 97' deep on 7/10/93, also made connection with pile 186 during coring, at bottom of cored pile

Comments:

Primary Pile # 207  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT./HR)	Redrill (FT./HR)						
06/25/93	2	DHD30	90		6.75		13.33		06/26/93			24	21.0	14.2%

Total Drill Time = 6.75 Hours  
Average Penetration Rate = 13.33 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 4.55" N X 1.77" E  
S-ARC North = 34.48  
S-ARC South = 21.61

Quality Coring: None.

Comments:

CUT-OFF WALL EXCAVATION				CUT-OFF WALL CONSTRUCTION								
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)				
05/10/93	2	DHD30	92		8.25		11.15			27	21.5	25.7%

Total Redrill Time =  
Average Penetration Rate =  
None

**Quality Coring: None.**

Primary Pile # 209  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment	Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
				Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
06/03/93		1	DHD30	90		6.17		14.59		06/03/93			24	21.0	14.2%

Total Redrill Time =  
Average Penetration Rate =  
None

Quality Coring: None.

**Comments:**

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
05/13/93	2	DHD130A	90		8.58		10.49		05/14/93			27	21.0	28.5%

Total Drill Time = 8.58 Hours  
Average Penetration Rate = 10.49 Feet / Hour

Total Redrill Time =  
Average Penetration Rate =  
None

Vertically Information	0" N/S X 0" EW
At Full Depth =	24.53
S-ARC North =	27.47
S-ARC South =	

Quality Coring: None.

**Comments:**

CUT-OFF WALL EXCAVATION				CUT-OFF WALL CONSTRUCTION									
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Pure Drill Time		Penetration Rate		Concrete Date	GROUT (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
				Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HRF)						
06/26/93	2	DHD130A	90		5.75		15.65	06/26/93			24	21.0	14.2%

**Total Drill Time =** 5.75 Hours  
**Average Penetration Rate =** 15.65 Feet / Hour

Total Redrill Time =  
Average Penetration Rate =  
None

Verticity Information	.5°N X 0°E/W
At Full Depth =	27.47
S - APC North =	21.70
S - APC South =	

**Quality Coring: None.**

**Comments:**

Secondary Pile # 212  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
04/20/93	1	XL-24	93		3.17		29.34		04/20/93			28	21.7	28.9%	

Total Drill Time = 3.17 Hours  
Average Penetration Rate = 29.34 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 2.78" S X 1" E  
S-ARC North = 21.70  
S-ARC South = 21.74

Quality Coring: None.

Comments:

Primary Pile # 213  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
05/28/93	2	DHD130A	90		5.00		18.00		05/28/93			24	21.0	14.2%	

Total Drill Time = 5.00 Hours  
Average Penetration Rate = 18.00 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1" N X 1.5" E  
S-ARC North = 21.74  
S-ARC South = 29.75

Quality Coring: None.

Comments:

Secondary Pile # 214  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
03/30/93	1	DHD130A		93		7.05		13.19	03/31/93			28	21.7	28.9%

Total Drill Time = 7.05 Hours  
Average Penetration Rate = 13.19 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 3.5° N X 2.28° W  
S-ARC North = 29.75  
S-ARC South = 25.52

Quality Coring: None.

Comments:

Primary Pile # 215  
Area "A"

Area A

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
06/28/93	2	DHD130A	90		6.88		13.08		06/28/93			24	21.0	14.2%

Total Drill Time = 6.88 Hours  
Average Penetration Rate = 13.08 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 2.78° N X 0° E/W  
S-ARC North = 25.52  
S-ARC South = 21.73

Quality Coring: None.

Comments:



Secondary Pile # 216  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
05/20/93	2	DHD130A	90		7.42		12.13		05/20/93			25.5	21.0	21.3%

Total Drill Time = 7.42 Hours  
Average Penetration Rate = 12.13 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = .5" S X 0" E/W  
S-ARC North = 21.73  
S-ARC South = 27.45

Quality Coring: None.

Comments:

Primary Pile # 217  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
05/26/93	2	DHD130A		90		7.58		11.87		05/26/93			25.5	21.0	21.3%

Total Drill Time = 7.58 Hours  
Average Penetration Rate = 11.87 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 0" N/S X 1" W  
S-ARC North = 27.45  
S-ARC South = 29.48

Quality Coring: None.

Comments:

Secondary Pile # 218  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
02/02/93	2	DHD130A	38		1.66	38	22.89	16.89	02/02/93		9	26	8.9	1.4%
04/06/93	1	DHD130A	91		4.82		11.00		04/07/93				21.3	22.4%

Total Drill Time = 6.48 Hours  
Average Penetration Rate = 14.04 Feet / Hour  
Total Redrill Time = 2.25 Hours  
Average Penetration Rate = 16.89 Feet / Hour

Verticality Information  
At Full Depth = 2' N X 0' E/W  
S-ARC North = 29.48  
S-ARC South = 25.96

Quality Coring: None.

Comments:

Primary Pile # 219  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
04/22/93	1	DHD130A	93		5.50			16.91	04/22/93			26	21.7	19.7%

Total Drill Time = 5.50 Hours  
Average Penetration Rate = 16.91 Feet / Hour  
Total Redrill Time = None  
Average Penetration Rate = None

Verticality Information  
At Full Depth = 1.85' N X 4.37' W  
S-ARC North = 25.96  
S-ARC South = 26.50

Quality Coring: None.

Comments:

Secondary Pile # 220  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	GROUT (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
06/30/93	2	DHD130A	Drill (FT)	90	Redrill (FT)	6.58	Drill (HRS)	13.68	07/01/93			24	21.0	14.2%

Total Drill Time = 6.58 Hours  
Average Penetration Rate = 13.68 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 2' N X .25' W  
S-ARC North = 26.50  
S-ARC South = 23.76

Quality Coring: None.

Comments:

Primary Pile # 221  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	GROUT (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
05/06/93	2	DHD130A	Drill (FT)	90	Redrill (FT)	6.16	Drill (HRS)	14.61	05/07/93			25	21.0	19.0%

Total Drill Time = 6.16 Hours  
Average Penetration Rate = 14.61 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 0' N/S X .5' E  
S-ARC North = 23.76  
S-ARC South = 21.72

Quality Coring: None.

Comments:

Secondary Pile # 222  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
04/16/93	1	DHD130A	93		6.34		14.67		04/16/93			26	21.7	19.7%

Total Drill Time = 6.34 Hours  
Average Penetration Rate = 14.67 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Vertically Information  
At Full Depth = 3.29' S X 1" E  
S-ARC North = 21.72  
S-ARC South = 32.70

Quality Coring: None.

Comments:

Primary Pile # 223  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
05/19/93	2	DHD130A	90		8.67			10.38		05/19/93			25	21.0	19.0%

Total Drill Time = 8.67 Hours  
Average Penetration Rate = 10.38 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Vertically Information  
At Full Depth = 1.25' N X .76" E  
S-ARC North = 32.70  
S-ARC South = 26.35

Quality Coring: None.

Comments:

CUT-OFF WALL EXCAVATION				CUT-OFF WALL CONSTRUCTION										
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
04/02/93	1	DHD130A	92		6.80			13.53				26.5	21.5	23.3%

1" N X 2" E	
At Full Depth =	26.35
S-ARC North =	26.77
S-ARC South =	

**Comments:**

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment		Drill Footage		Pure Drill Time			Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
	Rig #	Excavation Method	Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
05/11/93	2	DHD130A	90		6.59			13.66		05/12/93			24	21.0	14.2%

At Full Depth =	1° N X 5° E
S-ARC North =	26.77
S-ARC South =	21.09

Comments:

Secondary Pile # 226  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
04/09/93	1	DHD130A	92		6.30			14.60	04/09/93			26	21.5	21.0%

Total Drill Time = 6.30 Hours  
Average Penetration Rate = 14.60 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 2.28° S X 3.79° W  
S-ARC North = 21.09  
S-ARC South = 31.68

Quality Coring: None.

Comments: 6" Joint core 226/227; 30.3' deep on 8/19/93

Primary Pile # 227  
Area "A"

CUT-OFF WALL EXCAVATION														CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak			
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)										
06/28/93	2	DHD130A		90		8.75			10.29	06/29/93			24	21.0	14.2%			

Total Drill Time = 8.75 Hours  
Average Penetration Rate = 10.29 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 2° N X 1° E  
S-ARC North = 31.68  
S-ARC South = 23.75

Quality Coring: None.

Comments:

Secondary Pile # 228  
Area "A"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Drill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Redrill (FT / HR)	Drill (FT / HR)	Penetration Rate
05/15/93	2	DHD130A	90		8.75			10.29	
					Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)
					05/15/93			26	21.0
					Overbreak				
					23.7%				

Total Drill Time = 8.75 Hours  
Average Penetration Rate = 10.29 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 0° N/S X 0° E/W  
S-ARC North = 23.75  
S-ARC South = 24.63

Quality Coring: None.

Comments:

Primary Pile # 229  
Area "A"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Drill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Redrill (FT / HR)	Drill (FT / HR)	Penetration Rate
06/02/93	1	DHD130A	90		5.33			16.89	
					Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)
					06/02/93			24	21.0
					Overbreak				
					14.2%				

Total Drill Time = 5.33 Hours  
Average Penetration Rate = 16.89 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1.4° S X 1.77° W  
S-ARC North = 24.63  
S-ARC South = 30.56

Quality Coring: None.

Comments:

Secondary Pile # 230  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage Drill (FT)	Redrill (FT)	Pure Drill Time Drill (HRS)	Redrill (HRS)	Penetration Rate Drill (FT / HR)	Redrill (FT / HR)	Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
01/26/93	2	DHD130A	91		11.66		7.80		01/30/93		27		21.3	27.1%
05/27/93	2	DHD130A						3.58	05/28/93			27	21.0	28.5%

Total Drill Time = 11.66 Hours  
Average Penetration Rate = 0.09 Feet / Hour  
  
Total Redrill Time = 3.58 Hours  
Average Penetration Rate = 25.14 Feet / Hour

Verticality Information  
At Full Depth = 1.5" S X 0" E/W  
S-ARC North = 30.56  
S-ARC South = 24.56

Quality Coring: None.

Comments: Hole collapsed on 1/30/93

Primary Pile # 231  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage Drill (FT)	Redrill (FT)	Pure Drill Time Drill (HRS)	Redrill (HRS)	Penetration Rate Drill (FT / HR)	Redrill (FT / HR)	Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
06/14/93	2	DHD130A	90		6.00		15.00		06/14/93			24	21.0	14.2%

Total Drill Time = 6.00 Hours  
Average Penetration Rate = 15.00 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 0" N/S X 0" E/W  
S-ARC North = 24.56  
S-ARC South = 24.46

Quality Coring: None.

Comments:



Secondary Pile # 232  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
05/25/93	2	DHD130A	90		8.75		10.29		05/25/93			25.5	21.0	21.3%

Total Drill Time = 8.75 Hours  
Average Penetration Rate = 10.29 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1.57" S X 5" W  
S-ARC North = 24.46  
S-ARC South = 28.90

Quality Coring: None.

Comments:

Primary Pile # 233  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
06/24/93	2	DHD130A	90		6.25			14.40		06/25/93			23	21.0	9.4%

Total Drill Time = 6.25 Hours  
Average Penetration Rate = 14.40 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 0" N/S/ X 0" E/W  
S-ARC North = 28.90  
S-ARC South = 28.14

Quality Coring: None.

Comments:

Secondary Pile # 234  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
05/21/93	2	DHD130A	90		8.67		10.38		05/22/93			26.5	21.0	26.1%

Total Drill Time = 8.67 Hours  
Average Penetration Rate = 10.38 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1" N X .75" W  
S-ARC North = 28.14  
S-ARC South = 25.29

Quality Coring: None.

Comments:

Primary Pile # 235  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
06/04/93	1	DHD130A	90		6.50		13.85		06/05/93			24	21.0	14.2%

Total Drill Time = 6.50 Hours  
Average Penetration Rate = 13.85 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 0" N/S X 0" E/W  
S-ARC North = 25.29  
S-ARC South = 26.72

Quality Coring: None.

Comments:

Secondary Pile # 236  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
05/18/93	2	DHD130A	90		7.75		11.61		05/18/93			27	21.0	28.5%

Total Drill Time = 7.75 Hours  
Average Penetration Rate = 11.61 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Vertically Information  
At Full Depth = 0° N/S X 1.26° E  
S-ARC North = 26.72  
S-ARC South = 30.34

Quality Coring: None.

Comments:

Primary Pile # 237  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
05/26/93	2	DHD130A	90		7.25		12.41		05/26/93			24	21.0	14.2%

Total Drill Time = 7.25 Hours  
Average Penetration Rate = 12.41 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Vertically Information  
At Full Depth = 2.78° N X 1° W  
S-ARC North = 30.34  
S-ARC South = 26.00

Quality Coring: None.

Comments:

Secondary Pile # 238  
Area "A"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage Drill (FT)	Redrill (FT)	Pure Drill Time Drill (HRS)	Redrill (HRS)	Penetration Rate Drill (FT / HR)	Redrill (FT / HR)	Overbreak
04/17/93	1	DHD130A	93		6.58		14.13		47.3%

Total Drill Time = 6.58 Hours  
Average Penetration Rate = 14.13 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 2.28" N X 2.28" W  
S-ARC North = 26.00  
S-ARC South = 20.48

Quality Coring: None.

Comments:

Primary Pile # 239  
Area "A"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage Drill (FT)	Redrill (FT)	Pure Drill Time Drill (HRS)	Redrill (HRS)	Penetration Rate Drill (FT / HR)	Redrill (FT / HR)	Overbreak
05/10/93	2	DHD130A	92		8.17		11.26		11.7%

Total Drill Time = 8.17 Hours  
Average Penetration Rate = 11.26 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1.57" S X .78" E  
S-ARC North = 20.48  
S-ARC South = 28.21

Quality Coring: None.

Comments:

# Secondary Pile # 240

Area "A"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate (FT / HR)	Redrill (FT / HR)	Overbreak
02/02/93	2	DHD130A	46		3.50		13.14		11.7%
04/06/93	1	DHD130A	92	46	4.33	1.60	10.62	28.75	39.6%

Total Drill Time = 7.83 Hours  
Average Penetration Rate = 11.75 Feet / Hour  
Total Redrill Time = 1.60 Hours  
Average Penetration Rate = 28.75 Feet / Hour

Verticality Information  
At Full Depth = .5° S X 1.05° E  
S-ARC North = 28.21  
S-ARC South = 29.88

Quality Coring: None.

Comments:

# Primary Pile # 241

Area "A"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate (FT / HR)	Redrill (FT / HR)	Overbreak
05/14/93	2	DHD130A	90		7.00		12.86		14.2%

Total Drill Time = 7.00 Hours  
Average Penetration Rate = 12.86 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1.85° N X .94° W  
S-ARC North = 29.88  
S-ARC South = 23.21

Quality Coring: None.

Comments:

Secondary Pile # 242  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
04/20/93	2	XL-24	93		4.34			21.43	04/20/93			33.5	21.7	54.3%	

Total Drill Time = 4.34 Hours  
Average Penetration Rate = 21.43 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Vertically Information  
At Full Depth = 0' N/S X 4.04" W  
S--ARC North = 23.21  
S--ARC South = 25.20

Quality Coring: None.

Comments:

Primary Pile # 243  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete Volume (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
05/28/93	2	DHD130A	90		3.58			25.14		05/28/93			24	21.0	14.2%

Total Drill Time = 3.58 Hours  
Average Penetration Rate = 25.14 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Vertically Information  
At Full Depth = 1" S X 2" W  
S--ARC North = 25.20  
S--ARC South = 28.60

Quality Coring: None.

Comments:

Secondary Pile # 244  
Area "A"

CUT-OFF WALL EXCAVATION							CUT-OFF WALL CONSTRUCTION							
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	GROUT (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
05/05/93	2	DHD130A		92		7.67		11.99				30	21.5	39.6%

Total Drill Time = 7.67 Hours  
Average Penetration Rate = 11.99 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = .5" N X .76" E  
S-ARC North = 28.60  
S-ARC South = 30.01

Quality Coring: None.

Comments:

Primary Pile # 245  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
05/20/93	2	DHD130A	90		8.34		10.79		05/21/93			25	21.0	19.0%

Total Drill Time = 8.34 Hours  
Average Penetration Rate = 10.79 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 3.14" N X 2.35" W  
S-ARC North = 30.01  
S-ARC South = 21.40

Quality Coring: None.

Comments:

Secondary Pile # 246  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
04/16/93	1	DHD130A	93		5.91		15.74		04/16/93			29	21.7	33.5%

Total Drill Time = 5.91 Hours  
Average Penetration Rate = 15.74 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information

At Full Depth = 0° N/S X 2° E  
S-ARC North = 21.40  
S-ARC South = 26.03

Quality Coring: None.

Comments: End of side grout stabilization test section.

Primary Pile # 247  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
06/26/93	2	DHD130A	90		6.42		14.02		06/28/93			24	21.0	14.2%

Total Drill Time = 6.42 Hours  
Average Penetration Rate = 14.02 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information

At Full Depth = .5° S X 1.7° E  
S-ARC North = 26.03  
S-ARC South = 22.99

Quality Coring: None.

Comments:



Secondary Pile # 248  
Area "A"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate (FT / HR)	Drill (FT / HR)	Redrill (FT / HR)
02/05/93	2	DHD130A	91		8.80		10.34		
04/08/93	2	DHD130A	93	91	0.17	3.50	11.76		26.00
Total Drill Time = 8.97 Hours									
Average Penetration Rate = 10.37 Feet / Hour									
Total Redrill Time = 3.50 Hours									
Average Penetration Rate = 26.00 Feet / Hour									
Verticality Information									
At Full Depth = 3" S X 1.77" E									
S--ARC North = 22.99									
S--ARC South = 31.10									
Quality Coring: None.									
Comments:									

Primary Pile # 249  
Area "A"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate (FT / HR)	Drill (FT / HR)	Redrill (FT / HR)
06/02/93	1	DHD130A	90		7.42		12.13		
Total Drill Time = 7.42 Hours									
Average Penetration Rate = 12.13 Feet / Hour									
Total Redrill Time = None									
Average Penetration Rate =									
Verticality Information									
At Full Depth = .25" N X .76" E									
S--ARC North = 31.10									
S--ARC South = 19.13									
Quality Coring: None.									
Comments:									

Secondary Pile # 250  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
01/20/93	2	DHD130A		92		12.91			7.13	01/23/93			29	21.5	35.0%

Total Drill Time = 12.91 Hours  
Average Penetration Rate = 7.13 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 4.5" S X 0" EW  
S-ARC North = 19.13  
S-ARC South = 29.11

Quality Coring: NX/NQ cored to 97' on 7/15/93

Comments:

Primary Pile # 251  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume - (CU.YD.)	Overbreak
			Drill (FT)		Drill (HRS)	Redrill (FT)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
01/15/93	1	DHD130A		90		5.92			15.20	06/15/93			24	21.0	14.2%

Total Drill Time = 5.92 Hours  
Average Penetration Rate = 15.20 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 2.78" S X 0" EW  
S-ARC North = 29.11  
S-ARC South = 26.24

Quality Coring: None.

Comments:

Secondary Pile # 252  
Area "A"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate Drill (FT / HR)	Redrill (FT / HR)	Concrete Date
01/25/93	2	DHD130A	92		8.07		11.40		01/27/93
04/22/93	1	DHD130A	93		0		1860.00	0.00	04/23/94
Total Drill Time = 8.12 Hours									
Average Penetration Rate = 22.78 Feet / Hour									
Total Redrill Time = 5.50									
Average Penetration Rate =									
Vertically Information									
At Full Depth = 3.12' S X 1.12' W									
S--ARC North = 26.24									
S--ARC South = 30.79									
Quality Coring: This pile was cored on 1/25/93 but was not payed for because the pile was accidentally drilled again after coring was completed.									
Comments: Pile was accidentally redrilled by contractor on 4/22/93									

Total Drill Time = 8.12 Hours  
Average Penetration Rate = 22.78 Feet / Hour  
Total Redrill Time = 5.50  
Average Penetration Rate =

Vertically Information  
At Full Depth = 3.12' S X 1.12' W  
S--ARC North = 26.24  
S--ARC South = 30.79

Quality Coring: This pile was cored on 1/25/93 but was not payed for because the pile was accidentally drilled again after coring was completed.

Comments: Pile was accidentally redrilled by contractor on 4/22/93

Primary Pile # 253  
Area "A"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate Drill (FT / HR)	Redrill (FT / HR)	Concrete Date
05/06/93	2	DHD130A	90		5.83		15.44		05/06/93
Total Drill Time = 5.83 Hours									
Average Penetration Rate = 15.44 Feet / Hour									
Total Redrill Time = None									
Average Penetration Rate =									
Vertically Information									
At Full Depth = 0' N/S X 1' E									
S--ARC North = 30.79									
S--ARC South = 28.82									
Quality Coring: None.									
Comments:									

Total Drill Time = 5.83 Hours  
Average Penetration Rate = 15.44 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Vertically Information  
At Full Depth = 0' N/S X 1' E  
S--ARC North = 30.79  
S--ARC South = 28.82

Quality Coring: None.

Comments:

Secondary Pile # 254  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION						
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)								
04/01/93	1	DHD130A		92		6.91		13.31		04/02/93			26.5	21.5	23.3%	

Total Drill Time = 6.91 Hours  
Average Penetration Rate = 13.31 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1.5" N X 0" E/W  
S-ARC North = 28.82  
S-ARC South = 27.44

Quality Coring: None.

Comments:

Primary Pile # 255  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION						
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)								
06/28/93	2	DHD130A	90		4.92		18.29			06/29/93			24	21.0	14.2%	

Total Drill Time = 4.92 Hours  
Average Penetration Rate = 18.29 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 2" N X .75" E  
S-ARC North = 27.44  
S-ARC South = 25.29

Quality Coring: None.

Comments:

Secondary Pile # 256  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HRS)	Redrill (FT / HRS)							
06/03/93	1	DHD130A	91		6.42			14.17		06/04/93			27	21.3	27.1%

Total Drill Time = 6.42 Hours  
Average Penetration Rate = 14.17 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Vertically Information  
At Full Depth = 1" N X 0" E/W  
S-ARC North = 25.29  
S-ARC South = 29.41

Quality Coring: None.

Comments:

Primary Pile # 257  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
07/01/93	2	DHD130A	90		4.92		18.29		07/02/93			24	21.0	14.2%	

Total Drill Time = 4.92 Hours  
Average Penetration Rate = 18.29 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Vertically Information  
At Full Depth = 3" N X 1.78" E  
S-ARC North = 29.41  
S-ARC South = 23.90

Quality Coring: None.

Comments:

CUT-OFF WALL EXCAVATION				CUT-OFF WALL CONSTRUCTION										
Drilling Date	Equipment Rtg #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
06/10/93	1	DHD130A	90		5.75		15.65		06/11/93			31.5	21.0	49.9%

**Vertically Information**

At Full Depth =	1.15" N X 0" EW
S-APC North =	23.90
S-APC South =	30.96

**Comments:**

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment	Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
				Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
06/30/93		2	DHD 130A	90		6.50		13.85		06/30/93			24	21.0	14.2%

Verticality Information

At Full Depth =	4.30° N X 0° EW
S-ARC North =	30.96
S-ARC South =	18.04

Comments:

Secondary Pile # 260  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
06/12/93	1	DHD130A	90		7.25		12.41			06/14/93	28.5	21.0	35.6%	

Total Drill Time = 7.25 Hours  
Average Penetration Rate = 12.41 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1" S X 1.26" E  
S-ARC North = 18.04  
S-ARC South = 31.65

Quality Coring: None.

Comments:

Primary Pile # 261  
Area "A"

CUT-OFF WALL EXCAVATION							CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)				
06/26/93	2	DHD130A	90		6.34		14.20			27	21.0	28.5%

Total Drill Time = 6.34 Hours  
Average Penetration Rate = 14.20 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 3" N X 2.25" W  
S-ARC North = 31.65  
S-ARC South = 22.19

Quality Coring: None.

Comments:

Secondary Pile # 262  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
06/05/93	1	DHD130A	90		7.75		11.61		06/05/93			32	21.0	52.3%

Total Drill Time = 7.75 Hours  
Average Penetration Rate = 11.61 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 0° N/S X 1.52° W  
S-ARC North = 22.19  
S-ARC South = 30.37

Quality Coring: None.

Comments:

Primary Pile # 263  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
06/18/93	1	DHD130A	90		4.50		20.00		06/18/93			24	21.0	14.2%

Total Drill Time = 4.50 Hours  
Average Penetration Rate = 20.00 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 2.78° N X .51° E  
S-ARC North = 30.37  
S-ARC South = 22.56

Quality Coring: None.

Comments:



Secondary Pile # 264  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION								
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak			
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)										
02/03/93	2	DHD130A	75		6.58		11.40			02/03/93		21		17.5	19.9%			
04/20/93	1	DHD130A	93	75	1.42	0.75	12.68	100.00		04/21/93			26.5	21.7	22.0%			

Total Drill Time = 8.00 Hours  
Average Penetration Rate = 11.63 Feet / Hour  
  
Total Redrill Time = 0.75 Hours  
Average Penetration Rate = 100.00 Feet / Hour

Verticality Information  
At Full Depth = 0° N/S X 0° E/W  
S-ARC North = 22.56  
S-ARC South = 28.34

Quality Coring: 6" Joint core 264/265; 30.9' deep on 9/24/93

Comments:

Primary Pile # 265  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION							
Drilling Date	Equipment		Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak			
	Rig #	Excavation Method	Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)									
05/26/93	2	DHD130A	90		6.92		13.01		05/27/93			24	21.0	14.2%			

Total Drill Time = 6.92 Hours  
Average Penetration Rate = 13.01 Feet / Hour  
  
Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1.14° N X 0° E/W  
S-ARC North = 28.34  
S-ARC South = 23.17

Quality Coring: None.

Comments:

Secondary Pile # 266  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
01/29/93	2	DHD130A	90.5		6.16		14.69		01/30/93		32	21.1	51.4%	

Total Drill Time = 6.16 Hours  
Average Penetration Rate = 14.69 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1.25° S X 1° W  
S-ARC North = 23.17  
S-ARC South = 30.84

Quality Coring: None.

Comments:

Primary Pile # 267  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
05/18/93	2	DHD130A	90		8.50		10.59		05/18/93		24	21.0	14.2%	

Total Drill Time = 8.50 Hours  
Average Penetration Rate = 10.59 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1.83° N X 2.09° W  
S-ARC North = 30.84  
S-ARC South = 23.94

Quality Coring: None.

Comments:

Secondary Pile # 268  
Area "A"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate (FT / HR)	Drill (FT / HR)	Redrill (FT / HR)
04/06/93	2	DHD130A	93		6.00		15.50		
Total Drill Time = 6.00 Hours					Concrete Date 04/07/93				
Average Penetration Rate = 15.50 Feet / Hour					Spec. Concrete (CU.YD.) 29.5				
Total Redrill Time = None					Non-Spec. Concrete (CU.YD.)				
Average Penetration Rate =					GROUT (CU.YD.)				
Vertically Information					Theoretical Volume (CU.YD.) 21.7				
At Full Depth = 0' N/S X 0' E/W					Overbreak 35.8%				
S-ARC North = 23.94									
S-ARC South = 26.73									
Quality Coring: None.									
Comments:									

Primary Pile # 269  
Area "A"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate (FT / HR)	Drill (FT / HR)	Redrill (FT / HR)
05/11/93	2	DHD130A	90		6.92		13.01		
Total Drill Time = 6.92 Hours					Concrete Date 05/11/93				
Average Penetration Rate = 13.01 Feet / Hour					Spec. Concrete (CU.YD.) 24				
Total Redrill Time = None					Non-Spec. Concrete (CU.YD.)				
Average Penetration Rate =					GROUT (CU.YD.)				
Vertically Information					Theoretical Volume (CU.YD.) 21.0				
At Full Depth = 0' N/S X 1" E					Overbreak 14.2%				
S-ARC North = 26.73									
S-ARC South = 26.76									
Quality Coring: None.									
Comments:									

Secondary Pile # 270  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
02/04/93	2	DHD130A	44		2.33		18.88		02/05/93		13		10.3	26.5%
04/15/93	1	DHD130A	93	44	4.91	2.00	9.98	22.00	04/16/93			30	21.7	38.1%

Total Drill Time = 7.24 Hours  
Average Penetration Rate = 12.85 Feet / Hour  
  
Total Redrill Time = 2.00 Hours  
Average Penetration Rate = 22.00 Feet / Hour

Verticality Information  
At Full Depth = 0° N/S X 1.5° E  
S--ARC North = 26.76  
S--ARC South = 26.55

Quality Coring: None.

Comments:

Primary Pile # 271  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment		Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
	Rig #	Excavation Method	Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
05/14/93	2	DHD130A	90		8.58			10.49	05/15/93			24	21.0	14.2%

Total Drill Time = 8.58 Hours  
Average Penetration Rate = 10.49 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1.31° N X 2.22° E  
S--ARC North = 28.55  
S--ARC South = 23.70

Quality Coring: None.

Comments:

Secondary Pile # 272  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
04/09/93	1	DHD130A	93		7.00		13.29		04/09/93			34	21.7	56.6%

Total Drill Time = 7.00 Hours  
Average Penetration Rate = 13.29 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = .76" S X 2" E  
S-ARC North = 23.70  
S-ARC South = 25.27

Quality Coring: None.

Comments:

Primary Pile # 273  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
05/24/93	2	DHD130A	90		8.67		10.38		05/25/93			24.5	21.0	16.6%

Total Drill Time = 8.67 Hours  
Average Penetration Rate = 10.38 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1.77" S X 1" E  
S-ARC North = 25.27  
S-ARC South = 31.89

Quality Coring: None.

Comments:

Secondary Pile # 274  
Area "A"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate (FT / HR)	Redrill (FT / HR)	Overbreak
04/19/93	1	XL-24	93		3.92		23.72		47.3%

Total Drill Time = 3.92 Hours  
Average Penetration Rate = 23.72 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 2.25" N X 1.5" W  
S-ARC North = 31.89  
S-ARC South = 22.14

Quality Coring: None.

Comments:

Primary Pile # 275  
Area "A"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate (FT / HR)	Redrill (FT / HR)	Overbreak
05/21/93	2	DHD130A	90		8.16		11.03		19.0%

Total Drill Time = 8.16 Hours  
Average Penetration Rate = 11.03 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = .76" S X 1" W  
S-ARC North = 22.14  
S-ARC South = 27.75

Quality Coring: None.

Comments:

Secondary Pile # 276  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
05/28/93	2	DHD130A	90		5.58		16.13			05/28/93			24.5	21.0	16.6%

Total Drill Time = 5.58 Hours  
Average Penetration Rate = 16.13 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Vertically Information  
At Full Depth = 0° N/S X .5° E  
S-ARC North = 27.75  
S-ARC South = 30.91

Quality Coring: None.

Comments:

Primary Pile # 277  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
04/23/93	1	DHD130A	93		8.33			11.16	04/23/93			33	21.7	52.0%

Total Drill Time = 8.33 Hours  
Average Penetration Rate = 11.16 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Vertically Information  
At Full Depth = 3.5° N X 3.5° W  
S-ARC North = 30.91  
S-ARC South = 17.62

Quality Coring: None.

Comments:

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
06/04/93	1	DHD130A	90		6.08		14.80		06/04/93			26.5	21.0	26.1%

**Comments:**

CUT-OFF WALL EXCAVATION				CUT-OFF WALL CONSTRUCTION										
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Non-Spec. Concrete (CU.YD.)	Grout (CU.YD.)	Concrete Date	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
07/01/93	2	DHD130A	90		7.75		11.61				07/01/93	26	21.0	23.7%

**Comments:**



Secondary Pile # 280  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION						
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)								
02/04/93	2	DHD130A	34		1.75		19.43			02/05/93		8		7.9	0.8%	
06/15/93	1	DHD130A	91	34	4.41	1.42	12.93	23.94		06/15/93			32	21.3	50.6%	

Total Drill Time = 6.16 Hours  
Average Penetration Rate = 14.77 Feet / Hour

Total Redrill Time = 1.42 Hours  
Average Penetration Rate = 23.94 Feet / Hour

Verticality Information  
At Full Depth = 1.88" S X 1.6" W  
S-ARC North = 24.09  
S-ARC South = 29.12

Quality Coring: None.

Comments:

Primary Pile # 281  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION						
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak		
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)								
07/05/93	2	DHD130A	90		6.08			14.80	07/06/93			24	21.0	14.2%		

Total Drill Time = 6.08 Hours  
Average Penetration Rate = 14.80 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 0" N/S X 1" E  
S-ARC North = 29.12  
S-ARC South = 27.28

Quality Coring: None.

Comments:

Secondary Pile # 282  
Area "A"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Drill (FT/Hr)	Redrill (FT/Hr)	Overbreak
06/05/93	1	DHD130A	90		5.50		16.36		52.3%

Total Drill Time = 5.50 Hours  
Average Penetration Rate = 16.36 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Vertically Information  
At Full Depth = .5" N X 1.5" W  
S-ARC North = 27.28  
S-ARC South = 27.90

Quality Coring: None.

Comments:

Primary Pile # 283  
Area "A"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Drill (FT/Hr)	Redrill (FT/Hr)	Overbreak
07/21/93	2	DHD130A	90		4.83		18.63		9.4%

Total Drill Time = 4.83 Hours  
Average Penetration Rate = 18.63 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Vertically Information  
At Full Depth = 1.5" N X 1.5" E  
S-ARC North = 27.90  
S-ARC South = 25.30

Quality Coring: None.

Comments:

Secondary Pile # 284  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
01/28/93	2	DHD130A	63		2.70		23.33			01/29/93		21.5		14.7	46.1%
06/23/93	1	DHD130A	90	63	2.43		11.11	2.92		06/23/93			26	21.0	23.7%

Total Drill Time = 5.13 Hours  
Average Penetration Rate = 17.54 Feet / Hour  
  
Total Redrill Time = 2.92 Hours  
Average Penetration Rate = 21.58 Feet / Hour

Vertically Information  
At Full Depth = .5" N X 1" E  
S-ARC North = 25.30  
S-ARC South = 29.42

Quality Coring: None.

Comments:

Primary Pile # 285  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
07/05/93	2	DHD130A	90		5.33		16.89		07/06/93			24	21.0	14.2%

Total Drill Time = 5.33 Hours  
Average Penetration Rate = 16.89 Feet / Hour  
  
Total Redrill Time = None  
Average Penetration Rate =

Vertically Information  
At Full Depth = 2.5" N X .5" W  
S-ARC North = 29.42  
S-ARC South = 24.13

Quality Coring: None.

Comments:

Secondary Pile # 286  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
06/10/93	1	DHD130A	90		6.58			13.68	06/10/93			32.5	21.0	54.6%	

Total Drill Time = 6.58 Hours  
Average Penetration Rate = 13.68 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = .76" N X 1.75" W  
S-ARC North = 24.13  
S-ARC South = 27.11

Quality Coring: None.

Comments:

Primary Pile # 287  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
07/01/93	2	DHD130A	90		5.00		18.00		07/01/93			23	21.0	9.4%	

Total Drill Time = 5.00 Hours  
Average Penetration Rate = 18.00 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1" N X 1.25" W  
S-ARC North = 27.11  
S-ARC South = 22.96

Quality Coring: None.

Comments:

Secondary Pile # 288  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
06/14/93	1	DHD130A	90		6.08		14.80		06/14/93			31.5	21.0	49.9%

Total Drill Time = 6.08 Hours  
Average Penetration Rate = 14.80 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1.5' S X 1.75' W  
S-ARC North = 22.96  
S-ARC South = 30.73

Quality Coring: None.

Comments:

Primary Pile # 289  
Area "A"

CUT - OFF WALL EXCAVATION										CUT - OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non - Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
07/22/93	2	DHD130A	90		5.09		17.68		07/22/93			24	21.0	14.2%

Total Drill Time = 5.09 Hours  
Average Penetration Rate = 17.68 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1.5' N X 0' E/W  
S-ARC North = 30.73  
S-ARC South = 27.37

Quality Coring: None.

Comments:

Secondary Pile # 290  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
02/03/93	2	DHD130A	41		2.58		15.89		02/03/93		13		9.6	35.8%
06/18/93	1	DHD130A	90	41	4.21	1.46	11.64	28.08	06/19/93			28	21.0	33.2%

Total Drill Time = 6.79 Hours  
Average Penetration Rate = 13.25 Feet / Hour  
  
Total Redrill Time = 1.46 Hours  
Average Penetration Rate = 28.08 Feet / Hour

Verticality Information  
At Full Depth = 2' N X 1.77' W  
S-ARC North = 27.37  
S-ARC South = 23.68

Quality Coring: None.

Comments:

Primary Pile # 291  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	GROUT (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
07/23/93	2	DHD130A	90		4.92		18.29		07/23/94			24.5	21.0	16.6%	

Total Drill Time = 4.92 Hours  
Average Penetration Rate = 18.29 Feet / Hour  
  
Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 0' N/S X 0' E/W  
S-ARC North = 23.68  
S-ARC South = 26.61

Quality Coring: None.

Comments:

Secondary Pile # 292  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
06/16/93	1	DHD130A	90		6.90			13.04		06/16/93			32	21.0	52.3%

Total Drill Time = 6.90 Hours  
Average Penetration Rate = 13.04 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 0° N/S X 2.28° W  
S-ARC North = 26.61  
S-ARC South = 28.73

Quality Coring: None.

Comments:

Primary Pile # 293  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time			Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
07/26/93	2	DHD130A	90		5.16		17.44			07/26/93			24	21.0	14.2%

Total Drill Time = 5.16 Hours  
Average Penetration Rate = 17.44 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1.5° N X .5° W  
S-ARC North = 28.73  
S-ARC South = 26.06

Quality Coring: None.

Comments:

CUT-OFF WALL EXCAVATION				CUT-OFF WALL CONSTRUCTION											
Drilling Date	Equipment Rtg #	Excavation Method	Drill Footage		Pure Drill Time			Penetration Rate		Concrete Date	GROUT (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
06/12/93	1	DHD130A	90		5.84			15.41		06/12/93			30.5	21.0	45.1%

Total Redrill Time =  
Average Penetration Rate =  
None

Quality Coring: None.

CUT-OFF WALL EXCAVATION				CUT-OFF WALL CONSTRUCTION										
Drilling Date	Equipment Pig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
07/27/93	2	DHD130A	90		5.67			15.87		07/28/93		24	21.0	14.2%

**Total Redrill Time =**

**Average Penetration Rate =**

**None**

**Quality Coring: None.**

**Comments:**



Secondary Pile # 296  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION						
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)								
04/08/93	1	DHD130A	59		2.40		24.58			04/08/93		19	32	13.8	37.9%	
04/15/93	1	DHD130A	93		2.83	2.00	12.01	29.50		04/15/93				21.7	47.3%	

Total Drill Time = 5.23 Hours  
Average Penetration Rate = 17.78 Feet / Hour

Total Redrill Time = 2.00 Hours  
Average Penetration Rate = 29.50 Feet / Hour

Vertically Information  
At Full Depth = 0' N/S X 2.25' W  
S-ARC North = 25.55  
S-ARC South = 26.69

Quality Coring: None.

Comments:

Primary Pile # 297  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION						
Drilling Date	Equipment		Drill Footage		Pure Drill Time		Penetration Rate		Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak				
	Rig #	Excavation Method	Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)								
07/23/94	2	DHD130A	90		4.75		18.95		07/23/94	26	21.0	23.7%				

Total Drill Time = 4.75 Hours  
Average Penetration Rate = 18.95 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Vertically Information  
At Full Depth = 0' N/S X .76' W  
S-ARC North = 26.69  
S-ARC South = 28.69

Quality Coring: None.

Comments:

Secondary Pile # 298  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
02/04/93	2	DHD130A	40		3.08		12.99			02/05/93		15		9.3	60.6%
06/04/93	2	DHD130A	49	40	0.63	1.90	14.29	21.05		06/04/93		18		11.4	57.3%
06/29/93	2	DHD130A	90	49	3.16	2.17	12.97	22.58		06/30/93			29	21.0	38.0%

Total Drill Time = 6.87 Hours  
Average Penetration Rate = 13.10 Feet / Hour

Total Redrill Time = 4.07 Hours  
Average Penetration Rate = 21.87 Feet / Hour

Verticality Information  
At Full Depth = 1.5" N X 1.5" E  
S--ARC North = 28.69  
S--ARC South = 24.53

Quality Coring: 6" Joint core 30.1' deep on 9/27/93

Comments:

Primary Pile # 299  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
07/26/93	2	DHD130A	90		5.50		16.36		07/26/93			24	21.0	14.2%

Total Drill Time = 5.50 Hours  
Average Penetration Rate = 16.36 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 0" N/S X .76" E  
S--ARC North = 24.53  
S--ARC South = 28.06

Quality Coring: None.

Comments:

Secondary Pile # 300  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
01/22/93	2	DHD130A	35	0	3.16	1.00	11.08	0.00	01/28/93	LEFT	OPEN	7	8.2	-0.1%	
01/28/93	2	DHD130A	30	35	1.00	1.67	22.00	20.96	06/19/93			24	7.0	80.3%	
06/18/93	1	DHD130A	57	57	5.83	3.50	14.24	16.29	06/28/93				13.3	25.4%	
06/26/93	1	DHD130A	140	57									32.7		

Total Drill Time = 9.99 Hours  
Average Penetration Rate = 17.02 Feet / Hour

Total Redrill Time = 6.17 Hours  
Average Penetration Rate = 14.91 Feet / Hour

Verticality Information  
At Full Depth = 1.5" N X .75" W  
S-ARC North = 27.51  
S-ARC South = 22.94

Quality Coring: None.

Comments:

Primary Pile # 301  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
07/24/93	2	DHD130A	140		7.33		19.10		07/24/93			37.5	32.7	14.7%	

Total Drill Time = 7.33 Hours  
Average Penetration Rate = 19.10 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1" S X .5" E  
S-ARC North = 22.94  
S-ARC South = 30.97

Quality Coring: None.

Comments:

Secondary Pile # 302  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
06/07/93	1	DHD130A	141		9.66		14.60		06/07/93			43	32.9	30.6%

Total Drill Time = 9.66 Hours  
Average Penetration Rate = 14.60 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 2.27" N X 2.77" E  
S--ARC North = 30.97  
S--ARC South = 25.67

Quality Coring: NX/NQ to 144.1' deep on 8/18/93

Comments:

Primary Pile # 303  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
06/27/93	2	DHD130A	140		9.34		14.99		07/28/93			37.5	32.7	14.7%

Total Drill Time = 9.34 Hours  
Average Penetration Rate = 14.99 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1.5" N X 2.77" E  
S--ARC North = 25.67  
S--ARC South = 24.33

Quality Coring: None.

Comments:

Secondary Pile # 304  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
07/07/93	2	DHD130A	140		9.50			14.74	07/08/93			42.5	32.7	30.0%

Total Drill Time = 9.50 Hours  
Average Penetration Rate = 14.74 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 0° N/S X 0° E/W  
S-ARC North = 24.33  
S-ARC South = 25.67

Quality Coring: None.

Comments:

Primary Pile # 305  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment		Drill Footage		Penetration Rate				Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
	Rig #	Excavation Method	Drill (FT)	Redrill (FT)	Pure Drill Time Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
07/31/93	2	DHD130A	140		9.50			14.74	08/02/93			38	32.7	16.2%

Total Drill Time = 9.50 Hours  
Average Penetration Rate = 14.74 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = .76° S X 0° E/W  
S-ARC North = 25.67  
S-ARC South = 24.61

Quality Coring: None.

Comments:

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	GROUT (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
07/09/93	2	DHD130A	140		9.83			14.24		07/09/93		51.5	32.7	57.5%

Verticality Information	At Full Depth =	1.5" S X 5.92" W
	S-ARC North =	24.61
	S-ARC South =	29.74

**Comments:**

CUT - OFF WALL EXCAVATION				CUT - OFF WALL CONSTRUCTION									
Drilling Date	Equipment	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
		Excavation Method	Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)						
07/29/93	2	DHD130A	140		12.08		11.59	07/29/93			37	32.7	13.2%

Verticality Information

At Full Depth =	1" N X 2" W
S-ARC North =	29.74
S-ARC South =	23.36

Comments:

CUT-OFF WALL EXCAVATION				CUT-OFF WALL CONSTRUCTION										
Drilling Date	Equipment Fig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
07/12/93	2	DHD130A	140		9.08		15.42		07/12/93			47.5	32.7	45.3%

Total Redrill Time =  
Average Penetration Rate =  
None

Vertically Information

At Full Depth =	1.25" S X 1" W
S-ARC North =	23.36
S-ARC South =	31.04

**Comments:**

CUT-OFF WALL EXCAVATION				CUT-OFF WALL CONSTRUCTION										
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Non-Spec. Concrete (CU.YD.)	Grout (CU.YD.)	Concrete Date	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
08/02/93	2	DHD130A	140		7.92		17.68				08/03/93	38.5	32.7	17.8%

Total Redrill Time =  
Average Penetration Rate =  
None

Veracity Information

At Full Depth =	2' N X 5" E
S-ARC North =	31.04
S-ARC South =	21.21

**Comments:**

Secondary Pile # 310  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION									
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage	Drill (FT)	Redrill (FT)	Pure Drill Time (HRS)	Drill (FT / HR)	Redrill (HRS)	Penetration Rate	Drill (FT / HR)	Redrill (FT / HR)	Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak		
02/03/93	2	DHD130A	34			1.75	19.43		19.43			02/04/93		8		7.9	0.8%		
07/14/93	2	DHD130A	140	34		8.58	12.35	1.75				07/14/93			44	32.7	34.6%		

Total Drill Time = 10.33 Hours  
Average Penetration Rate = 13.55 Feet / Hour  
  
Total Redrill Time = 1.75 Hours  
Average Penetration Rate = 19.43 Feet / Hour

Verticality Information  
At Full Depth = 1.5° S X 2.5° E  
S-ARC North = 21.21  
S-ARC South = 30.73

Quality Coring: None.

Comments:

Primary Pile # 311  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION									
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage	Drill (FT)	Redrill (FT)	Pure Drill Time (HRS)	Drill (FT / HR)	Redrill (HRS)	Penetration Rate	Drill (FT / HR)	Redrill (FT / HR)	Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak		
08/03/93	2	DHD130A	140			8.84	15.84		15.84			08/04/93			38	32.7	16.2%		

Total Drill Time = 8.84 Hours  
Average Penetration Rate = 15.84 Feet / Hour  
  
Total Redrill Time = None  
Average Penetration Rate = None

Verticality Information  
At Full Depth = 2° N X 2.25° W  
S-ARC North = 30.73  
S-ARC South = 27.41

Quality Coring: None.

Comments:



Secondary Pile # 312  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
01/27/93	2	DHD130A	52		3.00		17.33		01/28/93		17		12.1	40.0%
07/19/93	2	DHD130A	140	52	6.25	2.83	14.08	18.37	07/20/93			40	32.7	22.4%

Total Drill Time = 9.25 Hours  
Average Penetration Rate = 15.14 Feet / Hour  
  
Total Redrill Time = 2.83 Hours  
Average Penetration Rate = 18.37 Feet / Hour

Verticality Information  
At Full Depth = 3.09° N X 3.09° E  
S-ARC North = 27.41  
S-ARC South = 25.82

Quality Coring: None.

Comments:

Primary Pile # 313  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
08/05/93	2	DHD130A	140		9.00		15.56		08/05/93			38.5	32.7	17.8%

Total Drill Time = 9.00 Hours  
Average Penetration Rate = 15.56 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 2.5° N X 1° E  
S-ARC North = 25.82  
S-ARC South = 24.56

Quality Coring: None.

Comments:

Secondary Pile # 314  
Area "A"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate (FT / HR)	Drill (FT / HR)	Overbreak
07/15/93	2	DHD130A	140		12.09		11.58		52.9%

Total Drill Time = 12.09 Hours  
Average Penetration Rate = 11.58 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1.5" N X 6.18" E  
S-ARC North = 24.56  
S-ARC South = 25.20

Quality Coring: None.

Comments:

Primary Pile # 315  
Area "A"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate (FT / HR)	Drill (FT / HR)	Overbreak
08/06/93	2	DHD130A	140		9.50		14.74		19.3%

Total Drill Time = 9.50 Hours  
Average Penetration Rate = 14.74 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1.5" N X 1" W  
S-ARC North = 25.20  
S-ARC South = 27.05

Quality Coring: None.

Comments:

CUT-OFF WALL EXCAVATION				CUT-OFF WALL CONSTRUCTION										
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
07/21/93	2	DHD130A	140		8.42		16.63		07/21/93			41	32.7	25.4%

**Comments:**

CUT-OFF WALL EXCAVATION				CUT-OFF WALL CONSTRUCTION										
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
09/07/93	2	DHD130A	140		7.66			18.28	08/07/93			39.5	32.7	20.9%

**Comments:**

Secondary Pile # 318  
Area "A"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)	
07/05/93	2	DHD130A	140		12.42		11.27		
									65.2%

Total Drill Time = 12.42 Hours  
Average Penetration Rate = 11.27 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1.58" N X 1.05" E  
S-ARC North = 20.46  
S-ARC South = 24.45

Quality Coring: None.

Comments:

Primary Pile # 319  
Area "A"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)	
08/09/93	2	DHD130A	140		8.48		16.51		
									16.2%

Total Drill Time = 8.48 Hours  
Average Penetration Rate = 16.51 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 0" N/S X 1.5" E  
S-ARC North = 24.45  
S-ARC South = 27.99

Quality Coring: None.

Comments:

Secondary Pile # 320  
Area "A"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage Drill (FT)	Redrill (FT)	Pure Drill Time Drill (HRS)	Redrill (HRS)	Penetration Rate Drill (FT / HR)	Redrill (FT / HR)	Concrete Date
06/14/93	1	DHD130A	140		9.58		14.61		06/15/93
06/23/93	1	DHD130A	140	140		9.58		14.61	06/23/93
Total Drill Time = 9.58 Hours					Theoretical Volume (CU.YD.)				
Average Penetration Rate = 14.61 Feet / Hour					Spec. Concrete (CU.YD.)				
Total Redrill Time = 9.58 Hours					Non-Spec. Concrete (CU.YD.)				
Average Penetration Rate = 14.61 Feet / Hour					Grout (CU.YD.)				
Verticality Information					Overbreak				
At Full Depth = 1" N X .75" W									
S-ARC North = 27.99									
S-ARC South = 26.68									
Quality Coring: None.									

Total Drill Time = 9.58 Hours  
Average Penetration Rate = 14.61 Feet / Hour

Total Redrill Time = 9.58 Hours  
Average Penetration Rate = 14.61 Feet / Hour

Verticality Information  
At Full Depth = 1" N X .75" W  
S-ARC North = 27.99  
S-ARC South = 26.68

Quality Coring: None.

Comments: PLATFORM COLLAPSE HELD 14 CU. YD. OF CONCRETE. COLLAPSE WAS UNDER THE MAT. AIRLIFTED PILE.

Primary Pile # 321  
Area "A"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage Drill (FT)	Redrill (FT)	Pure Drill Time Drill (HRS)	Redrill (HRS)	Penetration Rate Drill (FT / HR)	Redrill (FT / HR)	Concrete Date
08/10/93	2	DHD130A	140		9.58		14.61		08/10/93
Total Drill Time = 9.58 Hours					Theoretical Volume (CU.YD.)				
Average Penetration Rate = 14.61 Feet / Hour					Spec. Concrete (CU.YD.)				
Total Redrill Time = None					Non-Spec. Concrete (CU.YD.)				
Average Penetration Rate = None					Grout (CU.YD.)				
Verticality Information					Overbreak				
At Full Depth = 1" N X 1" E									
S-ARC North = 26.68									
S-ARC South = 27.47									
Quality Coring: None.									
Comments:									

Total Drill Time = 9.58 Hours  
Average Penetration Rate = 14.61 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate = None

Verticality Information  
At Full Depth = 1" N X 1" E  
S-ARC North = 26.68  
S-ARC South = 27.47

Quality Coring: None.

Comments:

Secondary Pile # 322  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
01/27/93	2	DHD130A	35	35	2.58	1.11	13.57	31.53	01/27/93		8		8.2	-2.1%	
06/04/93	1	DHD130A	40	40	0.33	1.67	15.15	23.95	06/04/93		14		9.3	49.9%	
06/17/93	1	DHD130A	140	40	7.67		13.04		06/18/93			41.5	32.7	26.9%	

Total Drill Time = 10.58 Hours  
Average Penetration Rate = 13.23 Feet / Hour

Total Redrill Time = 2.78 Hours  
Average Penetration Rate = 26.98 Feet / Hour

Verticality Information  
At Full Depth = 1.5" N X 1" E  
S--ARC North = 27.47  
S--ARC South = 26.00

Quality Coring: None.

Comments:

Primary Pile # 323  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Redrill (HRS)	Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
08/11/93	2	DHD130A	140		9.09		15.40		08/12/93				38	32.7	16.2%

Total Drill Time = 9.09 Hours  
Average Penetration Rate = 15.40 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1" N X 0" E/W  
S--ARC North = 26.00  
S--ARC South = 27.72

Quality Coring: None.

Comments:

CUT-OFF WALL EXCAVATION				CUT-OFF WALL CONSTRUCTION										
Drilling Date	Equipment Rtg #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	GROUT (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
06/07/93	1	DHD130A	140		9.58		14.61		06/08/94			48	32.7	46.8%

**Total Redrill Time =**

**Average Penetration Rate =**

**None**

**Quality Coring: None.**

**Comments:** Water flow eroded hole at 25' causing a cavity after drilling.

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
08/13/93	2	DHD 130A	140		9.57		14.63		08/13/93			37.5	32.7	14.7%

Total Redrill Time =  
Average Penetration Rate =  
None

**Quality Coring: None.**

**Comments:**

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Pkg #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	GROUT (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
06/11/93	1	DHD130A	140		11.49		12.18			06/12/93			54.5	32.7	66.7%

Total Redrill Time = None

**Quality Coring: None.**

Primary Pile # 327  
Area "A"

CUT - OFF WALL EXCAVATION										CUT - OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
07/23/93	2	DHD130A	140		10.41			13.45	07/23/93			39	32.7	19.3%

Total Redrill Time =  
Average Penetration Rate =  
None

**Quality Coring: None.**

**Comments:**



Secondary Pile # 328  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time			Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
02/03/93	2	DHD130A	34		0.75		45.33			02/04/93		8		7.9	0.8%
06/21/93	1	DHD130A	140	34	8.08	1.50	13.12	22.67		06/21/93			48.5	32.7	48.4%

Total Drill Time = 8.83 Hours  
Average Penetration Rate = 15.86 Feet / Hour

Total Redrill Time = 1.50 Hours  
Average Penetration Rate = 22.67 Feet / Hour

Verticality Information  
At Full Depth = 2.07" S X 1.56" E  
S-ARC North = 23.63  
S-ARC South = 25.32

Quality Coring: None.  
Comments:

Primary Pile # 329  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
08/19/93	2	DHD130A	140		7.67		18.25		08/20/93			36	32.7	10.1%

Total Drill Time = 7.67 Hours  
Average Penetration Rate = 18.25 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate = None

Verticality Information  
At Full Depth = 3" S X 0" E/W  
S-ARC North = 25.32  
S-ARC South = 30.42

Quality Coring: None.  
Comments:

CUT-OFF WALL EXCAVATION				CUT-OFF WALL CONSTRUCTION									
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time			Penetration Rate			Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)	Concrete Date	GROUT (CU.YD.)			Non-Spec. Concrete (CU.YD.)
06/28/93	1	DHD130A	141								45	32.9	36.7%

Total Redrill Time =  
Average Penetration Rate =  
None

**Quality Coring: None.**

Primary Pile # 331  
Area "A"

Drilling Date	CUT-OFF WALL EXCAVATION							CUT-OFF WALL CONSTRUCTION							
	Equipment		Drill Footage		Pure Drill Time			Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
	Rig #	Excavation Method	Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
08/21/93	2	DHID130A	140		7.34			19.07		08/23/93			39	32.7	19.3%

Total Redrill Time =  
Average Penetration Rate =  
None

**Quality Coring: None.**

**Comments:**

Secondary Pile # 332  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
07/01/93	1	DHD130A	140		10.83		12.93		07/01/93			47	32.7	43.8%	

Total Drill Time = 10.83 Hours  
Average Penetration Rate = 12.93 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = .75° N X .75° W  
S-ARC North = 25.67  
S-ARC South = 33.28

Quality Coring: None.

Comments:

Primary Pile # 333  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
07/28/93	2	DHD130A	140		10.08		13.89		07/28/93			39	32.7	19.3%	

Total Drill Time = 10.08 Hours  
Average Penetration Rate = 13.89 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 0° N/S X .76° W  
S-ARC North = 33.28  
S-ARC South = 25.97

Quality Coring: None.

Comments:

Secondary Pile # 334  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
07/06/93	2	DHD130A	140		11.17		12.53		07/06/93			42.5	32.7	30.0%

Total Drill Time = 11.17 Hours  
Average Penetration Rate = 12.53 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 5' N X 0" E/W  
S-ARC North = 25.97  
S-ARC South = 25.23

Quality Coring: None.

Comments:

Primary Pile # 335  
Area "A"

Area A

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
07/31/93	2	DHD130A	140		8.17			17.14		08/02/93			40	32.7	22.4%

Total Drill Time = 8.17 Hours  
Average Penetration Rate = 17.14 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 4.5' N X 1.51" E  
S-ARC North = 25.23  
S-ARC South = 20.50

Quality Coring: None.

Comments:

Secondary Pile # 336  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
01/21/93	2	DHD130A		53		8.91		5.95			SUMP		12.4	
06/16/93	1	DHD130A		140	53	10.00		8.70	106.00	06/17/93		56	32.7	71.3%
07/19/93	2	DHD130A		140	140			6.83	20.50	07/19/93			40	22.4%

Total Drill Time = 18.91 Hours  
Average Penetration Rate = 7.40 Feet / Hour  
  
Total Redrill Time = 7.33 Hours  
Average Penetration Rate = 26.33 Feet / Hour

Verticality Information  
At Full Depth = 3.75" N X 5.38" E  
S-ARC North = 20.50  
S-ARC South = 25.94

Quality Coring: None.  
Comments: Used hole as a sump

Primary Pile # 337  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
07/29/93	2	DHD130A	140		7.50		18.67		07/29/93			37.5	32.7	14.7%

Total Drill Time = 7.50 Hours  
Average Penetration Rate = 18.67 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 0" N/S X 1.75" E  
S-ARC North = 25.94  
S-ARC South = 26.02

Quality Coring: None.

Comments:

Secondary Pile # 338  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
07/08/93	2	DHD130A		140		17.25		8.12				53	32.7	62.1%	

Total Drill Time = 17.25 Hours  
Average Penetration Rate = 8.12 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = .5" S X 0" E/W  
S-ARC North = 26.02  
S-ARC South = 28.13

Quality Coring: None.

Comments:

Primary Pile # 339  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment		Drill Footage		Penetration Rate				Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
	Rig #	Excavation Method	Drill (FT)	Redrill (FT)	Pure Drill Time (HRS)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)							Redrill (FT / HR)
07/30/93	2	DHD130A		140		8.11		17.26	07/30/93			37	32.7	13.2%	

Total Drill Time = 8.11 Hours  
Average Penetration Rate = 17.26 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1" S X 1" W  
S-ARC North = 28.13  
S-ARC South = 31.44

Quality Coring: None.

Comments:

Secondary Pile # 340  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
07/10/93	2	DHD130A	140		14.34		9.76		07/12/94			48	32.7	46.8%

Total Drill Time = 14.34 Hours  
Average Penetration Rate = 9.76 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Vertically Information  
At Full Depth = 0' N/S X 0' E/W  
S-ARC North = 28.13  
S-ARC South = 31.44

Quality Coring: None.

Comments:

Primary Pile # 341  
Area "A"

Area A

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
08/03/93	2	DHD130A	140		9.42		14.86		08/03/93			38	32.7	16.2%

Total Drill Time = 9.42 Hours  
Average Penetration Rate = 14.86 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Vertically Information  
At Full Depth = 3.5' N X 0' E/W  
S-ARC North = 31.44  
S-ARC South = 23.26

Quality Coring: None.

Comments:

Secondary Pile # 342  
Area "A"

CUT - OFF WALL EXCAVATION										CUT - OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
07/13/93	2	DHD130A	140		9.08		15.42		07/13/93			43	32.7	31.5%

Total Drill Time = 9.08 Hours  
Average Penetration Rate = 15.42 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Vertically Information  
At Full Depth = 1.25' N X 2' E  
S-ARC North = 23.26  
S-ARC South = 28.83

Quality Coring: None.

Comments:

Primary Pile # 343  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment		Drill Footage		Pure Drill Time			Penetration Rate		Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
	Rig #	Excavation Method	Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
08/04/93	2	DHD130A	140		10.34			13.54		08/04/93	38	32.7	16.2%	

Total Drill Time = 10.34 Hours  
Average Penetration Rate = 13.54 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Vertically Information  
At Full Depth = 2.77' N X 1.5' E  
S-ARC North = 28.83  
S-ARC South = 25.81

Quality Coring: None.

Comments:



Secondary Pile # 344  
Area "A"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate (FT / HR)	Drill (FT / HR)	Redrill (FT / HR)
06/23/93	1	DHD130A	46		2.00		23.00		
07/16/93	2	DHD130A	140	46	7.50	2.67	12.53		17.23
Total Drill Time = 9.50 Hours					Concrete Date				
Average Penetration Rate = 14.74 Feet / Hour					Grout (CU.YD.)				
Total Redrill Time = 2.67 Hours					Non-Spec. Concrete (CU.YD.)				
Average Penetration Rate = 17.23 Feet / Hour					Spec. Concrete (CU.YD.)				
					Theoretical Volume (CU.YD.)				
					Overbreak				

Total Drill Time = 9.50 Hours  
Average Penetration Rate = 14.74 Feet / Hour

Total Redrill Time = 2.67 Hours  
Average Penetration Rate = 17.23 Feet / Hour

Verticality Information  
At Full Depth = 2.15" N X 0" E/W  
S-ARC North = 25.81  
S-ARC South = 25.08

Quality Coring: None.

Comments:

Primary Pile # 345  
Area "A"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate (FT / HR)	Drill (FT / HR)	Redrill (FT / HR)
08/06/93	2	DHD130A	140		8.25		16.97		
Total Drill Time = 8.25 Hours					Concrete Date				
Average Penetration Rate = 16.97 Feet / Hour					Grout (CU.YD.)				
Total Redrill Time = None					Non-Spec. Concrete (CU.YD.)				
Average Penetration Rate =					Spec. Concrete (CU.YD.)				
					Theoretical Volume (CU.YD.)				
					Overbreak				

Total Drill Time = 8.25 Hours  
Average Penetration Rate = 16.97 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1" N X 1" W  
S-ARC North = 25.08  
S-ARC South = 20.42

Quality Coring: None.

Comments:

Secondary Pile # 346  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
06/08/93	1	DHD130A	90		9.00		10.00		06/09/93		38		21.0	80.8%
06/25/93	1	DHD130A	120	90	1.92	3.08	15.63	29.22	06/28/93		32		28.0	14.2%
07/26/93	2	DHD130A	140	120	1.50	8.49	13.33	14.13	07/27/93			38	32.7	16.2%

Total Drill Time = 12.42 Hours  
Average Penetration Rate = 11.27 Feet / Hour  
  
Total Redrill Time = 11.57 Hours  
Average Penetration Rate = 18.15 Feet / Hour

Verticality Information  
At Full Depth = 3° S X 0° E/W  
S--ARC North = 20.42  
S--ARC South = 30.52

Quality Coring: None.

Comments: PILE CAVED IN ON 6/9/93 AND 6/25/93.

Primary Pile # 347  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
08/07/93	2	DHD130A	140		8.16		17.16		08/07/93			40	32.7	22.4%

Total Drill Time = 8.16 Hours  
Average Penetration Rate = 17.16 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 0° N/S X 3° W  
S--ARC North = 30.52  
S--ARC South = 25.86

Quality Coring: None.

Comments:

Secondary Pile # 348  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
06/21/93	1	DHD130A	140		12.42			11.27	06/22/93		48		32.7	46.8%
07/28/93	1	DHD130A	140	140			6.33	22.12	07/29/93			40	32.7	22.4%

Total Drill Time = 12.42 Hours  
Average Penetration Rate = 11.27 Feet / Hour

Total Redrill Time = 6.33 Hours  
Average Penetration Rate = 22.12 Feet / Hour

Verticality Information  
At Full Depth = .5" S X .5" W  
S-ARC North = 25.86  
S-ARC South = 28.77

Quality Coring: None.

Comments: PLATFORM COLLAPSE AND PILE CAVE IN.

Primary Pile # 349  
Area "A"

CUT-OFF WALL EXCAVATION														CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak					
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)											
08/10/93	2	DHD130A	140		9.92		14.11		08/10/93			38.5	32.7	17.8%					

Total Drill Time = 9.92 Hours  
Average Penetration Rate = 14.11 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1" N X 1" E  
S-ARC North = 28.77  
S-ARC South = 27.78

Quality Coring: None.

Comments:

Secondary Pile # 350  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
07/24/93	2	DHD130A	140		10.09		13.88		07/26/93			57	32.7	74.4%

Total Drill Time = 10.09 Hours  
Average Penetration Rate = 13.88 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1.75" N X 0" E/W  
S-ARC North = 27.78  
S-ARC South = 27.80

Quality Coring: None.

Comments:

Primary Pile # 351  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
08/11/93	2	DHD130A	140		8.25		16.97		08/11/93			38.5	32.7	17.8%

Total Drill Time = 8.25 Hours  
Average Penetration Rate = 16.97 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 2.5" N X .75" E  
S-ARC North = 27.80  
S-ARC South = 28.04

Quality Coring: None.

Comments:

Secondary Pile # 352  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION			
Drilling Date	Equipment		Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
	Rig #	Excavation Method	Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)					
07/22/93	2	DHD130A	140		10.92		12.82		07/23/93		75	32.7	129.4%

Total Drill Time = 10.92 Hours  
Average Penetration Rate = 12.82 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 3.5" N X 2.75" E  
S-ARC North = 28.04  
S-ARC South = 22.76

Quality Coring: None.

Comments: Hit a cavity 23-24' deep. Hole collapsed and had to be cleaned out.

Primary Pile # 353  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
08/12/93	2	DHD130A	140		11.15		12.56		08/13/93		37	32.7	13.2%	

Total Drill Time = 11.15 Hours  
Average Penetration Rate = 12.56 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1" N X 0" E/W  
S-ARC North = 22.76  
S-ARC South = 23.75

Quality Coring: None.

Comments:

**Comments:**

## L

**Comments:**

Secondary Pile # 356  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
01/29/93	2	DHD130A	47		3.75		12.53		02/01/93		16		11.0	45.8%
07/20/93	2	DHD130A	140	47	11.84	2.17	7.85	21.66	07/20/93			40	32.7	22.4%

Total Drill Time = 15.59 Hours  
Average Penetration Rate = 8.98 Feet / Hour  
  
Total Redrill Time = 2.17 Hours  
Average Penetration Rate = 21.66 Feet / Hour

Verticality Information  
At Full Depth = 0° N/S X 0° EW  
S-ARC North = 26.73  
S-ARC South = 22.17

Quality Coring: Cavity

Comments:

Primary Pile # 357  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
08/18/93	2	DHD130A	140		8.83		15.86		08/19/93			37	32.7	13.2%

Total Drill Time = 8.83 Hours  
Average Penetration Rate = 15.86 Feet / Hour  
  
Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 3° S X 5° E  
S-ARC North = 22.17  
S-ARC South = 30.79

Quality Coring: None.

Comments:

CUT-OFF WALL EXCAVATION				CUT-OFF WALL CONSTRUCTION								
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)				
07/14/93	2	DHD130A	140		10.50		13.33			52	32.7	59.1%

Total Redrill Time =  
Average Penetration Rate =  
None

**Quality Coring: None.**

Primary Pile # 359  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
08/21/93	2	DHD 130A	140		7.67		18.25		08/22/93			37	32.7	13.2%	

Total Redrill Time =

Average Penetration Rate =

None

**Quality Coring: None.**

**Comments:**



Secondary Pile # 360  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
03/01/93	1	DHD130A	29		1.50		19.33		03/01/93		7		6.8	3.4%	
03/11/93	1	DHD130A	51	29	1.66	1.00	13.25	29.00	03/11/93		22		11.9	84.7%	
04/20/93	1	DHD130A	65	51	0.50	0.67	28.00	76.12	04/21/93		29		15.2	91.1%	
07/17/93	2	DHD130A	140	65	7.58	2.83	9.89	22.97	07/19/93			38	32.7	16.2%	

Total Drill Time = 11.24 Hours  
Average Penetration Rate = 12.46 Feet / Hour  
Total Redrill Time = 4.50 Hours  
Average Penetration Rate = 32.22 Feet / Hour

Verticality Information  
At Full Depth = 2.09" N X 2.09" E  
S-ARC North = 29.47  
S-ARC South = 27.56

Quality Coring: None.

Comments:

Primary Pile # 361  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
08/16/93	2	DHD130A	140		7.75		18.06		08/17/93			39.5	32.7	20.8%

Total Drill Time = 7.75 Hours  
Average Penetration Rate = 18.06 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate = None

Verticality Information  
At Full Depth = 3" N X 2" W  
S-ARC North = 27.56  
S-ARC South = 25.30

Quality Coring: None.

Comments:

Secondary Pile # 362  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
07/01/93	1	DHD130A	140		7.92			17.68		07/01/93			43.5	32.7	33.1%

Total Drill Time = 7.92 Hours  
Average Penetration Rate = 17.68 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 2.5" N X 3" E  
S-ARC North = 25.30  
S-ARC South = 22.92

Quality Coring: None.

Comments:

Primary Pile # 363  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
08/06/93	2	DHD 130A	140		7.34			19.07		08/07/93			39	32.7	19.3%

Total Drill Time = 7.34 Hours  
Average Penetration Rate = 19.07 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 0" N/S X 1.5" E  
S-ARC North = 22.92  
S-ARC South = 27.28

Quality Coring: None.

Comments:

Secondary Pile # 364  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
03/02/93	1	DHD130A	45		2.50		18.00		03/03/93		10		10.5	-4.8%
07/07/93	2	DHD130A	140	45	10.75	2.17	8.84	20.74	07/07/93			40.5	32.7	23.9%

Total Drill Time = 13.25 Hours  
Average Penetration Rate = 10.57 Feet / Hour  
  
Total Redrill Time = 2.17 Hours  
Average Penetration Rate = 20.74 Feet / Hour

Verticality Information  
At Full Depth = .5" N X 1" W  
S-ARC North = 27.28  
S-ARC South = 28.16

Quality Coring: None.

Comments:

Primary Pile # 365  
Area "A"

CUT - OFF WALL EXCAVATION										CUT - OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non - Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
08/02/93	2	DHD130A	140		11.08		12.64			08/02/93			38	32.7	16.2%

Total Drill Time = 11.08 Hours  
Average Penetration Rate = 12.64 Feet / Hour

Total Redrill Time = None

Verticality Information  
At Full Depth = 1.5" N X 1" W  
S-ARC North = 28.16  
S-ARC South = 24.53

Quality Coring: None.

Comments:

Secondary Pile # 366  
Area "A"

CUT - OFF WALL EXCAVATION										CUT - OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non - Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
06/25/93	1	DHD130A		141		11.75		12.00	06/26/93			66	32.9	100.4%

Total Drill Time = 11.75 Hours  
Average Penetration Rate = 12.00 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 0° N/S X 2° W  
S-ARC North = 24.53  
S-ARC South = 23.79

Quality Coring: None.

Comments: Hole collapsed and had to be cleaned out.

Primary Pile # 367  
Area "A"

CUT-OFF WALL EXCAVATION														CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak				
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)										
07/30/93	2	DHD130A	140		9.59		14.60		07/30/93			37	32.7	13.2%				

Total Drill Time = 9.59 Hours  
Average Penetration Rate = 14.60 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 2° S X 2.27° W  
S-ARC North = 23.79  
S-ARC South = 27.65

Quality Coring: None.

Comments:

Secondary Pile # 368  
Area "A"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Drill (FT / HR)	Redrill (FT / HR)	Concrete Date	Overbreak
06/15/93	1	DHD130A	92		6.75	13.63		06/15/93	67.6%
06/22/93	1	DHD130A	141	92	3.17	15.46	5.50	06/22/93	18.4%

Total Drill Time = 9.92 Hours  
Average Penetration Rate = 14.21 Feet / Hour

Total Redrill Time = 5.50 Hours  
Average Penetration Rate = 16.73 Feet / Hour

Verticality Information  
At Full Depth = 1.25" S X 0" EW  
S--ARC North = 27.65  
S--ARC South = 29.68

Quality Coring: 6" Joint core 29.9' deep on 10/28/93.

Comments:

Primary Pile # 369  
Area "A"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Drill (FT / HR)	Redrill (FT / HR)	Concrete Date	Overbreak
08/04/93	2	DHD130A	140		8.50	16.47		08/04/93	16.2%

Total Drill Time = 8.50 Hours  
Average Penetration Rate = 16.47 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1.09" N X 2.27" E  
S--ARC North = 29.68  
S--ARC South = 27.44

Quality Coring: See pile 368

Comments:

Secondary Pile # 370  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
03/01/93	1	DHD130A	31		1.83		16.94		03/01/93		9		7.2	24.3%
03/12/93	1	DHD130A	51	31	0.41	3.00	48.78	10.33	03/12/93		14		11.9	17.6%
06/17/93	1	DHD130A	140	51	8.75	3.16	10.17	16.14	06/17/93			41	32.7	25.4%

Total Drill Time = 10.99 Hours  
Average Penetration Rate = 12.74 Feet / Hour

Total Redrill Time = 6.16 Hours  
Average Penetration Rate = 13.31 Feet / Hour

Verticality Information  
At Full Depth = 1.5" N X 3" E  
S-ARC North = 27.44  
S-ARC South = 29.74

Quality Coring: None.

Comments: Cavity observed 25'-45'.

Primary Pile # 371  
Area "A"

CUT-OFF WALL EXCAVATION															CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak					
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)											
08/05/93	2	DHD130A	140		7.25		19.31		08/05/93			38	32.7	16.2%					

Total Drill Time = 7.25 Hours  
Average Penetration Rate = 19.31 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 3.78" N X 1.26" E  
S-ARC North = 29.74  
S-ARC South = 21.79

Quality Coring: None.

Comments:

Secondary Pile # 372  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
06/12/93	1	DHD130A	140		11.24			12.46		06/12/93			47	32.7	43.8%

Total Drill Time = 11.24 Hours  
Average Penetration Rate = 12.46 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = .5° N X .79° E  
S-ARC North = 21.79  
S-ARC South = 32.63

Quality Coring: None.

Comments:

Primary Pile # 373  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION						
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Redrill		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)								
08/09/93	2	DHD130A	140		8.75				16.00		08/09/93			38.5	32.7	17.8%

Total Drill Time = 8.75 Hours  
Average Penetration Rate = 16.00 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 5° N X 0° E/W  
S-ARC North = 32.63  
S-ARC South = 29.68

Quality Coring: None.

Comments:

Secondary Pile # 374  
Area "A"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate (FT / HR)	Redrill (FT / HR)	Overbreak
03/03/93	1	DHD130A	50		2.16		23.15		-100.0%
06/09/93	1	DHD130A	141	50	10.00	3.50	9.10	14.29	85.3%

Total Drill Time = 12.16 Hours  
Average Penetration Rate = 11.60 Feet / Hour  
  
Total Redrill Time = 3.50 Hours  
Average Penetration Rate = 14.29 Feet / Hour

Verticality Information  
At Full Depth = 7.58° N X 4.08° W  
S-ARC North = 29.68  
S-ARC South = 22.34

Quality Coring: Used as a sump for 3 months.

Comments:

Primary Pile # 375  
Area "A"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate (FT / HR)	Redrill (FT / HR)	Overbreak
08/11/93	2	DHD130A	140		10.50		13.33		22.4%

Total Drill Time = 10.50 Hours  
Average Penetration Rate = 13.33 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 4.78° N X 1.5° W  
S-ARC North = 22.34  
S-ARC South = 18.43

Quality Coring: None.

Comments:



CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
06/24/93	1	DHD130A	141		9.58		14.72		06/24/93			32	32.9	-2.8%

Total Redrill Time = None

Quality Coring: None.

Primary Pile # 377  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION						
Drilling Date	Equipment	Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
				Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (ET / HR)	Redrill (ET / HR)							
08/12/93		2	DHD130A	140		9.08			15.42	08/12/93			38	32.7	16.2%	

Total Redrill Time = None

**Quality Coring: None.**

**Comments:**

Secondary Pile # 378  
Area "A"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage Drill (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Drill Penetration Rate (FT / HR)	Redrill (FT / HR)	Concrete Date
03/10/93	1	DHD130A	65		4.00		16.25		03/10/93
07/02/93	1	DHD130A	141	65	9.75	3.33	7.79	19.52	07/02/93
Total Drill Time = 13.75 Hours									
Average Penetration Rate = 10.25 Feet / Hour									
Total Redrill Time = 3.33 Hours									
Average Penetration Rate = 19.52 Feet / Hour									
Verticality Information									
At Full Depth = 2.5" S X 4.78"W									
S--ARC North = 20.47									
S--ARC South = 29.84									
Quality Coring: None.									
Comments:									

Primary Pile # 379  
Area "A"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage Drill (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Drill Penetration Rate (FT / HR)	Redrill (FT / HR)	Concrete Date
08/17/93	2	DHD130A	140		9.42		14.86		08/17/93
Total Drill Time = 9.42 Hours									
Average Penetration Rate = 14.86 Feet / Hour									
Total Redrill Time = None									
Average Penetration Rate =									
Verticality Information									
At Full Depth = 0" N/S X 1.5" W									
S--ARC North = 29.84									
S--ARC South = 25.50									
Quality Coring: None.									
Comments:									

Secondary Pile # 380  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
03/01/93	1	DHD130A	32		1.75		18.29		03/01/93		7		7.5	-6.3%
06/28/93	1	DHD130A	61	32	0.91	1.09	31.87	29.36	06/29/93		25.5		14.2	79.0%
07/07/93	1	DHD130A	140	61	10.50	4.25	7.52	14.35	07/08/93			47.5	32.7	45.3%

Total Drill Time = 13.16 Hours  
Average Penetration Rate = 10.64 Feet / Hour  
  
Total Redrill Time = 5.34 Hours  
Average Penetration Rate = 17.42 Feet / Hour

Verticality Information  
At Full Depth = .75' S X 1" E  
S-ARC North = 25.50  
S-ARC South = 31.67

Quality Coring: None.

Comments:

Primary Pile # 381  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
08/20/93	2	DHD130A	140		6.33			22.12		08/21/93			38	32.7	16.2%

Total Drill Time = 6.33 Hours  
Average Penetration Rate = 22.12 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 3" N X .5" W  
S-ARC North = 31.67  
S-ARC South = 22.87

Quality Coring: None.

Comments: Connected with pile408

Secondary Pile # 382  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
06/30/93	1	DHD130A	61		1.75		34.86		06/30/93			24	14.2	68.5%
07/09/93	2	DHD130A	140	61	7.42	3.50	10.65	17.43	07/10/93			41	32.7	25.4%

Total Drill Time = 9.17 Hours  
Average Penetration Rate = 15.27 Feet / Hour  
  
Total Redrill Time = 3.50 Hours  
Average Penetration Rate = 17.43 Feet / Hour

Verticality Information  
At Full Depth = .5" N X 1.5" E  
S-ARC North = 22.87  
S-ARC South = 28.09

Quality Coring: None.

Comments:

Primary Pile # 383  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
08/23/93	2	DHD130A	140		9.80		14.29		08/24/93			35	32.7	7.1%

Total Drill Time = 9.80 Hours  
Average Penetration Rate = 14.29 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1.5" N X 0" E/W  
S-ARC North = 28.09  
S-ARC South = 24.56

Quality Coring: None.

Comments:

Secondary Pile # 384  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rtg #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
03/03/93	1	DHD130A	59		5.41		10.91		03/04/93		22		13.8	59.7%
03/11/93	1	DHD130A	65	59	0.25	0.75	24.00	78.67	03/12/93		16		15.2	5.4%
07/16/93	2	DHD130A	140	65	9.25	3.75	8.11	17.33	07/17/93			43	32.7	31.5%

Total Drill Time = 14.91 Hours  
Average Penetration Rate = 9.39 Feet / Hour  
  
Total Redrill Time = 4.50 Hours  
Average Penetration Rate = 27.56 Feet / Hour

Verticality Information  
At Full Depth = 0° N/S X 0° E/W  
S-ARC North = 24.56  
S-ARC South = 22.16

Quality Coring: None.

Comments:

Primary Pile # 385  
Area "A"

Area A

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
08/30/93	2	240	140		4.41		31.75		08/31/93			38	32.7	16.2%

Total Drill Time = 4.41 Hours  
Average Penetration Rate = 31.75 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 3° S X 1° W  
S-ARC North = 22.16  
S-ARC South = 27.99

Quality Coring: None.

Comments:

Secondary Pile # 386  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
07/13/93	2	DHD130A	140		15.25			9.18	07/14/93			58	32.7	77.4%

Total Drill Time = 15.25 Hours  
Average Penetration Rate = 9.18 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 2' S X 1.25' E  
S-ARC North = 27.99  
S-ARC South = 25.15

Quality Coring: None.

Comments:

Primary Pile # 387  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
09/13/93	2	DHD130A	140		7.59		18.45		09/13/93			37.5	32.7	14.7%

Total Drill Time = 7.59 Hours  
Average Penetration Rate = 18.45 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 3' S X 1" W  
S-ARC North = 25.15  
S-ARC South = 30.34

Quality Coring: None.

Comments:

Secondary Pile # 388  
Area "A"

CUT - OFF WALL EXCAVATION										CUT - OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Non - Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
07/15/93	2	DHD130A	140		8.75		16.00		07/15/93		71	32.7	117.2%	

Total Drill Time = 8.75 Hours  
Average Penetration Rate = 16.00 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 0° N/S X 2.9° E  
S-ARC North = 30.34  
S-ARC South = 22.18

Quality Coring: None.

Comments:

Primary Pile # 389  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Spec. Concrete (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
09/14/93	2	240	140		5.00		28.00		09/15/93	38		32.7	16.2%	

Total Drill Time = 5.00 Hours  
Average Penetration Rate = 28.00 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 2.77° S X .76° W  
S-ARC North = 22.18  
S-ARC South = 30.16

Quality Coring: None.

Comments:

Secondary Pile # 390  
Area "A"

CUT - OFF WALL EXCAVATION										CUT - OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
03/01/93	1	DHD130A	31		1.25		24.80		03/01/93		9		7.2	24.3%
06/22/93	1	DHD130A	48	31	0.84	1.83	20.24	16.94	06/22/93		24		11.2	114.1%
08/13/93	2	DHD130A	140	48	6.83	2.75	13.47	17.45	08/16/93			41	32.7	25.4%

Total Drill Time = 8.92 Hours  
Average Penetration Rate = 15.70 Feet / Hour

Total Redrill Time = 4.58 Hours  
Average Penetration Rate = 17.25 Feet / Hour

Vertically Information  
At Full Depth = .25' S X .75' W  
S-ARC North = 30.16  
S-ARC South = 25.55

Quality Coring: None.

Comments:

Primary Pile # 391  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
09/15/93	2	DHD130A	140		7.17		19.53		09/16/93			38	32.7	16.2%

Total Drill Time = 7.17 Hours  
Average Penetration Rate = 19.53 Feet / Hour

Total Redrill Time = None

Vertically Information  
At Full Depth = 1' S X 1.25' E  
S-ARC North = 25.55  
S-ARC South = 28.07

Quality Coring: None.

Comments:



CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION						
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time			Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)								
07/23/93	1	DHD130A	140		7.58			18.47			08/11/93			57.5	32.7	75.9%

**Comments:**

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION							
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)				
09/28/93	2	DHD130A		140		8.84		15.84		39	32.7	19.3%

Comments:

CUT - OFF WALL EXCAVATION				CUT - OFF WALL CONSTRUCTION									
Drilling Date	Equipment	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
		Excavation Method	Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)						
08/20/93	2	DHD130A	140		10.78		12.99	08/21/93			46	32.7	40.7%

Total Redrill Time = None

Total Redrill Time =

Total Redrill Time =

Verticality Information	At Full Depth =	3.53" S X 0" EW
	S-APC North =	24.54
	S-APC South =	31.11

**Comments:**

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment	Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
				Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
09/14/93		2	XL-24		140		5.42		25.83	09/15/93			38	32.7	16.2%

Total Redrill Time =  
Average Penetration Rate =  
None

Total Bedrill Time =

Total Bedrill Time =

Vertically Information

At Full Depth =	0° N S X 3.27° W
S-ARC North =	31.11
S-ARC South =	20.69

**Comments:**

Secondary Pile # 396  
Area "A"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate (FT / HR)	Redrill (FT / HR)	Overbreak
09/27/93	2	DHD130A	140		7.25		19.31		51.4%

Total Drill Time = 7.25 Hours  
Average Penetration Rate = 19.31 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 3.86° S X 4.69° W  
S-ARC North = 20.69  
S-ARC South = 28.39

Quality Coring: None.

Comments:

Primary Pile # 397  
Area "A"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate (FT / HR)	Redrill (FT / HR)	Overbreak
09/25/93	2	DHD130A	140		8.67		16.15		13.2%

Total Drill Time = 8.67 Hours  
Average Penetration Rate = 16.15 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 2.5° S X 2° W  
S-ARC North = 28.39  
S-ARC South = 26.02

Quality Coring: None.

Comments:



Secondary Pile # 400  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
03/01/93	1	DHD130A	31		1.75		17.71		03/02/93		7		7.2	-3.3%
03/10/93	1	DHD130A	64	31	0.75	0.92	44.00	33.70	03/11/93		16		14.9	7.1%
09/08/93	2	DHD130A	140	64	4.25	1.33	17.88	48.12	09/09/93			42	32.7	28.5%

Total Drill Time = 6.75 Hours  
Average Penetration Rate = 20.74 Feet / Hour

Total Redrill Time = 2.25 Hours  
Average Penetration Rate = 42.22 Feet / Hour

Verticality Information  
At Full Depth = 1.75" S X .5" W  
S-ARC North = 24.17  
S-ARC South = 30.80

Quality Coring: 6" Joint core; 400/401; 10/26/93

Comments:

Primary Pile # 401  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
09/21/93	2	DHD130A	140		7.92		17.68		09/22/93			39.5	32.7	20.8%

Total Drill Time = 7.92 Hours  
Average Penetration Rate = 17.68 Feet / Hour

Total Redrill Time = None

Verticality Information  
At Full Depth = 1.25" N X .75" W  
S-ARC North = 30.80  
S-ARC South = 24.78

Quality Coring: None.

Comments:

Secondary Pile # 402  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
06/24/93	1	DHD130A	63		1.92		32.81		06/24/93		25		14.7	69.9%
09/10/93	2	DHD130A	140	63	5.41	3.75	14.23	16.80	09/10/93			41	32.7	25.4%

Total Drill Time = 7.33 Hours  
Average Penetration Rate = 19.10 Feet / Hour  
Total Redrill Time = 3.75 Hours  
Average Penetration Rate = 16.80 Feet / Hour

Verticality Information  
At Full Depth = 0° N/S X 3° W  
S-ARC North = 24.78  
S-ARC South = 33.29

Quality Coring: None.

Comments:

Primary Pile # 403  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
09/18/93	2	DHD130A	140		7.92			17.68	09/18/93			38	32.7	16.2%

Total Drill Time = 7.92 Hours  
Average Penetration Rate = 17.68 Feet / Hour  
Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 5° N X 2.75° W  
S-ARC North = 33.29  
S-ARC South = 18.34

Quality Coring: None.

Comments:

Secondary Pile # 404  
Area "A"

CUT - OFF WALL EXCAVATION										CUT - OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non - Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
08/26/93	2	DHD130A	140		7.08			19.77	08/26/93			55	32.7	68.2%

Total Drill Time = 7.08 Hours  
Average Penetration Rate = 19.77 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 0° N/S X 0° E/W  
S-ARC North = 18.34  
S-ARC South = 25.86

Quality Coring: None.

Comments:

Primary Pile # 405  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
09/29/93	2	DHD130A	140		9.16		15.28		09/29/93			38	32.7	16.2%

Total Drill Time = 9.16 Hours  
Average Penetration Rate = 15.28 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = .5° S X 2.5° W  
S-ARC North = 25.86  
S-ARC South = 29.77

Quality Coring: None.

Comments:

Secondary Pile # 406  
Area "A"

CUT - OFF WALL EXCAVATION										CUT - OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non - Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
08/23/93	2	DHD130A	140		9.25		15.14		08/23/93			50	32.7	52.9%

Total Drill Time = 9.25 Hours  
Average Penetration Rate = 15.14 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Vertically Information  
At Full Depth = 1.75" N X 1.25" W  
S-ARC North = 29.77  
S-ARC South = 26.39

Quality Coring: None.

Comments:

Primary Pile # 407  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
09/30/93	2	DHD130A	140		8.84		15.84		10/01/93			39	32.7	19.3%

Total Drill Time = 8.84 Hours  
Average Penetration Rate = 15.84 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Vertically Information  
At Full Depth = 1.5" N X .5" W  
S-ARC North = 26.39  
S-ARC South = 22.71

Quality Coring: None.

Comments:



Secondary Pile # 408  
Area "A"

CUT - OFF WALL EXCAVATION										CUT - OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
08/18/93	2	DHD130A	140		13.16		10.64		08/19/93			69.5	32.7	112.6%

Total Drill Time = 13.16 Hours  
Average Penetration Rate = 10.64 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1" S X 3.5" W  
S-ARC North = 22.71  
S-ARC South = 30.11

Quality Coring: None.

Comments: Connected to piles 443, 445, & 381

Primary Pile # 409  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
10/02/93	2	DHD130A	140		8.33		16.81		10/02/93			38	32.7	16.2%

Total Drill Time = 8.33 Hours  
Average Penetration Rate = 16.81 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1.5" N X 2.25" W  
S-ARC North = 30.11  
S-ARC South = 31.07

Quality Coring: None.

Comments:

Secondary Pile # 410  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION						
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)								
03/01/93	1	DHD130A	22		1.66			13.25			OPEN			5.1		
03/04/93	1	DHD130A	42		0.58		0.17	72.41	0.00		OPEN			9.8		
03/11/93	1	DHD130A	65		0.41		0.17	158.54	0.00	03/12/93		20		15.2	31.8%	
08/24/93	2	DHD130A	140	65	5.42		2.17	13.84	29.95	08/24/93			42	32.7	28.5%	

Total Drill Time = 8.07 Hours  
Average Penetration Rate = 25.28 Feet / Hour  
Total Redrill Time = 2.51 Hours  
Average Penetration Rate = 25.90 Feet / Hour

Verticality Information  
At Full Depth = 4.75" N X 1" W  
S-ARC North = 31.07  
S-ARC South = 22.15

Quality Coring: None.

Comments:

Primary Pile # 411  
Area "A"

CUT - OFF WALL EXCAVATION										CUT - OFF WALL CONSTRUCTION						
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non - Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak		
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)								
09/29/93	2	DHD130A	140		8.67		16.15		09/29/93			36	32.7	10.1%		

Total Drill Time = 8.67 Hours  
Average Penetration Rate = 16.15 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1.75" N X 0" E/W  
S-ARC North = 22.15  
S-ARC South = 27.34

Quality Coring: None.

Comments:

Secondary Pile # 412  
Area "A"

CUT - OFF WALL EXCAVATION										CUT - OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non - Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
08/05/93	1	DHD130A	171		20.17		8.48		08/13/93			83.5	39.9	109.1%

Total Drill Time = 20.17 Hours  
Average Penetration Rate = 8.48 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 2.67" N X 1.33" E  
S-ARC North = 27.34  
S-ARC South = 22.69

Quality Coring: NX/NQ cored 177.2' deep on 11/04/93.

Comments: Hole collapsed after completion, had to be cleaned; connected to 442

Primary Pile # 413  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
10/01/93	2	DHD130A	170		10.66		15.95		10/01/93			46	39.7	15.9%

Total Drill Time = 10.66 Hours  
Average Penetration Rate = 15.95 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 0 N/S X 0 E/W  
S-ARC North = 22.69  
S-ARC South = 25.19

Quality Coring: None.

Comments:

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
08/03/93	1	DHD130A	170		14.17		12.00		08/03/93			58	39.7	46.1%

**Total Redrill Time =**

**Average Penetration Rate =**

**None**

**Quality Coring: None.**

Primary Pile # 415  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
09/27/93	2	DHD130A	170		10.34			16.44	09/27/93			45.5	39.7	14.6%

Total Redrill Time =  
Average Penetration Rate =  
None

Quality Coring: None.

**Comments:**

Secondary Pile # 416  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
07/22/93	2	DHD130A	170		10.42		16.31		07/22/93			57	39.7	43.6%

Total Drill Time = 10.42 Hours  
Average Penetration Rate = 16.31 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = .75" S X 2.25" E  
S-ARC North = 24.56  
S-ARC South = 27.46

Quality Coring: None.

Comments:

Primary Pile # 417  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
09/13/93	2	240	170		5.83		29.16		09/14/93			47	39.7	18.4%

Total Drill Time = 5.83 Hours  
Average Penetration Rate = 29.16 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = .25" S X 2" E  
S-ARC North = 27.46  
S-ARC South = 30.08

Quality Coring: None.

Comments:

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak		
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)					Concrete Date	GROUT (CU.YD.)
07/20/93	1	DHD130A	170		11.83		14.37		07/21/93	55	39.7	38.5%		

Total Redrill Time =  
Average Penetration Rate =  
None

**Quality Coring: None.**

**Comments:**

CUT-OFF WALL EXCAVATION				CUT-OFF WALL CONSTRUCTION									
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Pure Drill Time (HRS)	Drill (FT / HR)	Redrill (HRS)						
09/24/93	2	DHD130A	170		9.50		17.89	09/24/93			48	39.7	20.9%

Total Redrill Time =  
Average Penetration Rate =  
None

**Quality Coring: None.**

Comments:

Secondary Pile # 420  
Area "A"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)	
03/02/93	1	DHD130A	33		1.41		23.40		03/02/93
06/24/93	1	DHD130A	60	33	5.00	2.33	5.40	14.16	07/06/93
07/05/93	1	DHD130A	170	0	4.83		35.20		

Total Drill Time = 11.24 Hours  
Average Penetration Rate = 20.46 Feet / Hour

Total Redrill Time = 2.33 Hours  
Average Penetration Rate = 14.16 Feet / Hour

Verticality Information  
At Full Depth = 5.15' N X 3.09' E  
S-ARC North = 39.60  
S-ARC South = 18.30

Quality Coring: None.

Comments:

Primary Pile # 421  
Area "A"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)	
09/16/93	2	DHD130A	170		9.33		18.22		09/16/93

Total Drill Time = 9.33 Hours  
Average Penetration Rate = 18.22 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate = None

Verticality Information  
At Full Depth = 0' N/S X 1.5' E  
S-ARC North = 18.30  
S-ARC South = 23.50

Quality Coring: None.

Comments:

CUT - OFF WALL EXCAVATION				CUT - OFF WALL CONSTRUCTION										
Drilling Date	Equipment	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non - Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
06/30/93	1	DHD130A		170		17.92		9.49	06/30/93			75	39.7	88.9%

Total Redrill Time =  
Average Penetration Rate =  
None

**Quality Coring: None.**

**Comments:** Hole collapsed

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment	Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
				Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
09/22/93		2	DHD130A		170		10.83		15.70	09/23/93			46	39.7	15.9%

**Total Redrill Time =**

**Average Penetration Rate =**

**None**

Quality Coring: None.

**Comments:** Connected with hole 399



Secondary Pile # 424  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
03/04/93	1	DHD130A	64		2.50		25.60		63/04/93		19		14.9	27.1%
07/07/93	1	DHD130A	170	64	8.52	2.66	12.44	24.06	07/08/93			53	39.7	33.5%

Total Drill Time = 11.02 Hours  
Average Penetration Rate = 15.43 Feet / Hour

Total Redrill Time = 2.66 Hours  
Average Penetration Rate = 24.06 Feet / Hour

Vertically Information  
At Full Depth = 0° N/S X 0° E/W  
S-ARC North = 33.88  
S-ARC South = 17.71

Quality Coring: None.

Comments:

Primary Pile # 425  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
09/21/93	2	DHD130A	170		11.50		14.78		09/21/93			45.5	39.7	14.6%

Total Drill Time = 11.50 Hours  
Average Penetration Rate = 14.78 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Vertically Information  
At Full Depth = 5.28° S X 3.52° E  
S-ARC North = 17.71  
S-ARC South = 28.56

Quality Coring: None.

Comments:

Secondary Pile # 426  
Area "A"

CUT-OFF WALL EXCAVATION							CUT-OFF WALL CONSTRUCTION								
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
06/24/93	1	DHD130A	60		4.00		15.00			06/25/93		20.5		14.0	46.3%
07/17/93	1	DHD130A	170	60	12.87	4.47	8.55	13.42		07/19/93			96.5	39.7	143.1%

Total Drill Time = 16.87 Hours  
Average Penetration Rate = 10.08 Feet / Hour  
  
Total Redrill Time = 4.47 Hours  
Average Penetration Rate = 13.42 Feet / Hour

Vertically Information  
At Full Depth = 3.92' S X 1.96" E  
S-ARC North = 28.56  
S-ARC South = 31.50

Quality Coring: None.

Comments: Large cavity 56 - 65' took 32 cubic yds of concrete to fill.

Primary Pile # 427  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
09/17/93	2	DHD130A	170		11.25		15.11		09/18/93	46	39.7	15.9%		

Total Drill Time = 11.25 Hours  
Average Penetration Rate = 15.11 Feet / Hour

Total Redrill Time = None

Vertically Information  
At Full Depth = 0' N/S X 1.76" W  
S-ARC North = 31.50  
S-ARC South = 28.13

Quality Coring: None.

Comments:

Secondary Pile # 428  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage Drill (FT)	Redrill (FT)	Pure Drill Time Drill (HRS)	Redrill (HRS)	Penetration Rate Drill (FT / HR)		Redrill (FT / HR)	Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
07/12/93	1	DHD130A	75		2.50		30.00			07/12/93		36		17.5	105.6%
07/26/93	1	DHD130A	170	75	7.26	3.92	13.09		19.13	07/27/93			46	39.7	15.9%

Total Drill Time = 9.76 Hours  
Average Penetration Rate = 17.42 Feet / Hour  
Total Redrill Time = 3.92 Hours  
Average Penetration Rate = 19.13 Feet / Hour

Verticality Information  
At Full Depth = 1" N X .75" W  
S-ARC North = 28.13  
S-ARC South = 25.29

Quality Coring: None.

Comments:

Primary Pile # 429  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage Drill (FT)	Redrill (FT)	Pure Drill Time Drill (HRS)	Redrill (HRS)	Penetration Rate Drill (FT / HR)		Redrill (FT / HR)	Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
09/07/93	2	DHD130A	170		10.00		17.00			09/07/93			46	39.7	15.9%

Total Drill Time = 10.00 Hours  
Average Penetration Rate = 17.00 Feet / Hour  
Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 0" N/S X 0" E/W  
S-ARC North = 25.29  
S-ARC South = 28.16

Quality Coring: None.

Comments:

Secondary Pile # 430  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION						
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)								
03/02/93	1	DHD130A	30		2.75			10.91		03/03/93		7		7.0	-0.1%	
03/10/93	1	DHD130A	65	30	1.00		0.41	35.00		03/10/93		21		15.2	38.4%	
07/23/93	1	DHD130A	86	65	2.50		3.00	8.40		07/24/93		71.5		20.1	256.0%	
07/29/93	1	DHD130A	170	86	1.58		4.75	53.16		07/30/93			45	39.7	13.4%	

Total Drill Time = 7.83 Hours  
Average Penetration Rate = 21.71 Feet / Hour  
Total Redrill Time = 8.16 Hours  
Average Penetration Rate = 22.18 Feet / Hour

Verticality Information  
At Full Depth = 1" N X 0" E/W  
S-ARC North = 28.16  
S-ARC South = 20.05

Quality Coring: 6" Joint core 430/431; 29.6' deep on 10/29/93.

Comments: Cavity at 86'; placed 71.5 cu. yds

Primary Pile # 431  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION						
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak				
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)								
09/08/93	2	DHD130A	170		10.08		16.87			46.5	39.7	17.1%				

Total Drill Time = 10.08 Hours  
Average Penetration Rate = 16.87 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 3.25" S X 0" E/W  
S-ARC North = 20.05  
S-ARC South = 30.43

Quality Coring: None.

Comments:

Secondary Pile # 432  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
07/14/93	1	DHD130A	80		2.08		38.46		07/15/93		35.5		18.7	90.0%
07/28/93	1	DHD130A	170	80	8.66	4.09	10.39	19.56	07/28/93			48	39.7	20.9%

Total Drill Time = 10.74 Hours  
Average Penetration Rate = 15.83 Feet / Hour

Total Redrill Time = 4.09 Hours  
Average Penetration Rate = 19.56 Feet / Hour

Vertically Information  
At Full Depth = .5" S X .5" E  
S-ARC North = 30.43  
S-ARC South = 24.57

Quality Coring: None.

Comments: Connected with pile 460

Primary Pile # 433  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
09/10/93	2	240	170		6.16		27.60		09/11/93			45	39.7	13.4%

Total Drill Time = 6.16 Hours  
Average Penetration Rate = 27.60 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Vertically Information  
At Full Depth = 2" S X .5" E  
S-ARC North = 24.57  
S-ARC South = 29.37

Quality Coring: None.

Comments:

Secondary Pile # 434  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
03/11/93	1	DHD130A	65		1.90		34.21		03/12/93	18			15.2	18.6%	
08/11/93	1	DHD130A	170	65	11.25	3.42	9.33	19.01	08/12/93			88	39.7	121.7%	

Total Drill Time = 13.15 Hours  
Average Penetration Rate = 12.93 Feet / Hour  
  
Total Redrill Time = 3.42 Hours  
Average Penetration Rate = 19.01 Feet / Hour

Verticality Information  
At Full Depth = 0° N/S X 1.5° W  
S-ARC North = 29.37  
S-ARC South = 6.23

Quality Coring: None.

Comments: DEFICIENT JOINT WIDTH AT FULL DEPTH, CORRECTED WITH CONFORMING PILE.  
Connected with pile 472; Large cavity encountered.

Primary Pile # 435  
Area "A"

Area A

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
09/15/93	2	DHD130A	171		9.08		18.83		09/15/93			44	39.9	10.2%	

Total Drill Time = 9.08 Hours  
Average Penetration Rate = 18.83 Feet / Hour  
  
Total Redrill Time = None  
Average Penetration Rate = None

Verticality Information  
At Full Depth = 6.54° S X 12.10° E  
S-ARC North = 6.23  
S-ARC South = 26.25

Quality Coring: None.

Comments:

Secondary Pile # 436  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	GROUT (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
07/31/93	1	DHD130A	170		15.42		11.02		08/02/93			81	39.7	104.0%

Total Drill Time = 15.42 Hours  
Average Penetration Rate = 11.02 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 5.18" S X 3.11" E  
S-ARC North = 26.25  
S-ARC South = 18.36

Quality Coring: None.

Comments: Cavities 40 to 60' deep

Primary Pile # 437  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
08/30/93	2	DHD130A	170		10.51		16.18		08/30/93			51	39.7	28.5%

Total Drill Time = 10.51 Hours  
Average Penetration Rate = 16.18 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 10.30" S X 1.5" E  
S-ARC North = 18.36  
S-ARC South = 31.90

Quality Coring: None.

Comments:

Secondary Pile # 438  
Area "A"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION							
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)				
08/09/93	1	DHD130A	171		12.41		13.78		46.5		39.9	16.4%
08/16/93	1	DHD130A	170	171		7.42	ERR	23.05			45	13.4%

Total Drill Time = 12.41 Hours  
Average Penetration Rate = 13.70 Feet / Hour  
Total Redrill Time = 7.42 Hours  
Average Penetration Rate = 23.05 Feet / Hour

Verticality Information  
At Full Depth = 5° S X 5.78° W  
S-ARC North = 31.90  
S-ARC South = 33.69

Quality Coring: None.

Comments: Connected with pile 470; Hole collapsed 50 feet.

Primary Pile # 439  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak		
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
08/23/93	1	DHD130A	170		10.42		16.31		08/23/93	46	39.7	15.9%		



Secondary Pile # 440  
Area "A"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate (FT / HR)	Drill (FT / HR)	Redrill (FT / HR)
03/02/93	1	DHD130A	30		1.33			22.56	
08/12/93	1	DHD130A	171	30	11.30	0.86	34.88	12.48	34.88
Total Drill Time = 12.63 Hours					Concrete Date				
Average Penetration Rate = 13.54 Feet / Hour					GROUT (CU.YD.)				
Total Redrill Time = 0.86 Hours					Non-Spec. Concrete (CU.YD.)				
Average Penetration Rate = 34.88 Feet / Hour					Spec. Concrete (CU.YD.)				
					Theoretical Volume (CU.YD.)				
					Overbreak				
					6				
					7.0				
					39.9				
					-14.4%				
					37.7%				

Total Drill Time = 12.63 Hours  
Average Penetration Rate = 13.54 Feet / Hour  
Total Redrill Time = 0.86 Hours  
Average Penetration Rate = 34.88 Feet / Hour

Verticality Information  
At Full Depth = 0° N/S X 3° E  
S-ARC North = 24.66  
S-ARC South = 17.96

Quality Coring: None.

Comments:

Primary Pile # 441  
Area "A"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate (FT / HR)	Drill (FT / HR)	Redrill (FT / HR)
08/18/93	1	DHD130A	170		9.08			18.72	
Total Drill Time = 9.08 Hours					Concrete Date				
Average Penetration Rate = 18.72 Feet / Hour					GROUT (CU.YD.)				
Total Redrill Time = None					Non-Spec. Concrete (CU.YD.)				
Average Penetration Rate = None					Spec. Concrete (CU.YD.)				
					Theoretical Volume (CU.YD.)				
					Overbreak				
					49				
					39.7				
					23.4%				

Total Drill Time = 9.08 Hours  
Average Penetration Rate = 18.72 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate = None

Verticality Information  
At Full Depth = 5.28° S X .75° E  
S-ARC North = 17.96  
S-ARC South = 37.01

Quality Coring: None.

Comments:

Secondary Pile # 442  
Area "A"

CUT-OFF WALL EXCAVATION						CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage	Pure Drill Time	Penetration Rate	Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
08/06/93	1	DHD130A	170	8.84	19.23	08/07/93			67	39.7	68.8%

Total Drill Time = 8.84 Hours  
Average Penetration Rate = 19.23 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Vertically Information  
At Full Depth = 3' N X 2.25' E  
S-ARC North = 37.01  
S-ARC South = 24.88

Quality Coring: None.

Comments: Connection with pile 412

Primary Pile # 443  
Area "A"

CUT-OFF WALL EXCAVATION						CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage	Pure Drill Time	Penetration Rate	Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
08/20/93	1	DHD130A	170	10.50	16.19	08/20/93			46	39.7	15.9%

Total Drill Time = 10.50 Hours  
Average Penetration Rate = 16.19 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Vertically Information  
At Full Depth = 2' N X 1.5' W  
S-ARC North = 24.88  
S-ARC South = 26.00

Quality Coring: None.

Comments:

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time			Penetration Rate		Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
08/04/93	1	DHD 130A	170		9.42			18.05			59.5	39.7	49.9%	

Total Redrill Time =  
Average Penetration Rate =  
None

**Quality Coring: None.**

Primary Pile # 445  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
08/17/93	1	DHD130A	170		10.67			15.93		08/18/93			47	39.7	18.4%

Total Redrill Time =  
Average Penetration Rate =  
None

**Quality Coring: None.**

Comments: Connected with pile 408

CUT - OFF WALL EXCAVATION				CUT - OFF WALL CONSTRUCTION								
Drilling Date	Equipment	Drill Footage		Penetration Rate			Concrete Date	GROUT (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
		Excavation Method	Drill (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)						
07/22/93	1	DHD130A	170		11.67		14.57			59	39.7	48.6%

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION									
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
08/21/93	1	DHD130A	170		9.09		18.70		08/21/93			48	39.7	20.9%

**Comments:**

Secondary Pile # 448  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
07/15/93	1	DHD130A	170		11.50		14.78		07/16/93			69	39.7	73.8%

Total Drill Time = 11.50 Hours  
Average Penetration Rate = 14.78 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1.79' N X 0' EW  
S-ARC North = 25.97  
S-ARC South = 23.35

Quality Coring: None.

Comments:

Primary Pile # 449  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
08/24/93	2	DHD130A	170		10.51		16.18		08/26/93			46.5	39.7	17.1%

Total Drill Time = 10.51 Hours  
Average Penetration Rate = 16.18 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = .5' S X .5' W  
S-ARC North = 23.35  
S-ARC South = 27.45

Quality Coring: None.

Comments:

Secondary Pile # 450  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
03/02/93	1	DHD130A	50		1.33		37.59		03/03/93		11		11.7	-5.8%
07/20/93	1	DHD130A	170	50	8.09	1.58	14.83	31.65	07/20/93			51.5	39.7	29.7%

Total Drill Time = 9.42 Hours  
Average Penetration Rate = 18.05 Feet / Hour  
Total Redrill Time = 1.58 Hours  
Average Penetration Rate = 31.65 Feet / Hour

Verticality Information  
At Full Depth = 0° N/S X 0° E/W  
S-ARC North = 27.45  
S-ARC South = 29.39

Quality Coring: None.

Comments:

Primary Pile # 451  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
09/20/93	2	DHD130A	170		8.59			19.79		09/21/93			46	39.7	15.9%

Total Drill Time = 8.59 Hours  
Average Penetration Rate = 19.79 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 2.77° N X 6° W  
S-ARC North = 29.39  
S-ARC South = 29.48

Quality Coring: None.

Comments: Connected with pile 425

Secondary Pile # 452  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
07/06/93	1	DHD130A	170		11.33		15.00		07/07/93			64	39.7	61.2%

Total Drill Time = 11.33 Hours  
Average Penetration Rate = 15.00 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 4.78" N X 6.79" W  
S--ARC North = 29.48  
S--ARC South = 22.83

Quality Coring: None.

Comments:

Primary Pile # 453  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
09/13/93	2	240	170		5.33		31.89		09/14/93			47	39.7	18.4%

Total Drill Time = 5.33 Hours  
Average Penetration Rate = 31.89 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 2.5" N X 2.5" W  
S--ARC North = 22.83  
S--ARC South = 23.96

Quality Coring: None.

Comments:

Secondary Pile # 454  
Area "A"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate (FT / HR)	Redrill (FT / HR)	Overbreak
03/04/93	1	DHD130A	60		3.33		18.02		49.9%
07/13/93	1	DHD130A	170	60	4.32	3.33	25.46	18.02	26.0%

Total Drill Time = 7.65 Hours  
Average Penetration Rate = 22.22 Feet / Hour  
  
Total Redrill Time = 3.33 Hours  
Average Penetration Rate = 18.02 Feet / Hour

Verticality Information  
At Full Depth = 1" N X 2" E  
S-ARC North = 23.96  
S-ARC South = 25.24

Quality Coring: None.

Comments:

Primary Pile # 455  
Area "A"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate (FT / HR)	Redrill (FT / HR)	Overbreak
09/11/93	2	240	171		5.33		32.08		12.7%

Total Drill Time = 5.33 Hours  
Average Penetration Rate = 32.08 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 0" N/S X .5" E  
S-ARC North = 25.24  
S-ARC South = 28.13

Quality Coring: None.

Comments: Connected with pile 485



Secondary Pile # 456  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
07/09/93	1	DHD130A	171		12.59		13.58		07/09/93			55.5	39.9	39.0%

Total Drill Time = 12.59 Hours  
Average Penetration Rate = 13.58 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1" N X 1.25" E  
S-ARC North = 28.13  
S-ARC South = 12.79

Quality Coring: None.

Comments:

Primary Pile # 457  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
09/17/93	2	DHD130A	170		10.09		16.85		09/17/93			44	39.7	10.8%

Total Drill Time = 10.09 Hours  
Average Penetration Rate = 16.85 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 6.54" S X 1" W  
S-ARC North = 12.79  
S-ARC South = 34.77

Quality Coring: None.

Comments:

CUT - OFF WALL EXCAVATION				CUT - OFF WALL CONSTRUCTION										
Drilling Date	Equipment	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non - Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
07/10/93	1	DHD130A	170		13.91		12.22		07/12/93			52	39.7	31.0%

Total Redrill Time =  
Average Penetration Rate =  
None

Verticality Information

At Full Depth =	0° N/S X 2" E
S-ARC North =	34.77
S-ARC South =	29.30

**Comments:**

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment	Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
				Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
09/07/93		2	DHD130A	170		8.00		21.25		09/08/93			47	39.7	18.4%

**Total Redrill Time =**

**Average Penetration Rate =**

**None**

Verticality Information

At Full Depth =	2° N X 4.53° E
S-ARC North =	29.30
S-ARC South =	25.55

Comments:

Secondary Pile # 460  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
03/02/93	1	DHD130A	45		1.50		30.00		03/03/93		11		10.5	4.7%
03/10/93	1	DHD130A	55	45	1.00	0.91	10.00	49.45	03/10/93		18		12.8	40.1%
07/14/93	1	DHD130A	170	55	10.25	2.25	11.22	24.44	07/14/93			46	39.7	15.9%

Total Drill Time = 12.75 Hours  
Average Penetration Rate = 13.33 Feet / Hour

Total Redrill Time = 3.16 Hours  
Average Penetration Rate = 31.65 Feet / Hour

Verticality Information  
At Full Depth = 1.27" N X 2.29" E  
S-ARC North = 25.55  
S-ARC South = 24.76

Quality Coring: None.

Comments: Connected with pile 432

Primary Pile # 461  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
09/09/93	2	DHD130A	170		10.25		16.59		09/10/93			46.5	39.7	17.1%

Total Drill Time = 10.25 Hours  
Average Penetration Rate = 16.59 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 0" N/S X 0" E/W  
S-ARC North = 24.76  
S-ARC South = 24.56

Quality Coring: None.

Comments:

CUT-OFF WALL EXCAVATION				CUT-OFF WALL CONSTRUCTION								
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)				
07/26/93	1	DHD130A	170		12.17		13.97			52	39.7	31.0%

**Total Drill Time =**  
**Average Penetration Rate =**

Total Redrill Time =  
Average Penetration Rate =  
None

Vertically Information

At Full Depth =	1.5° S X 0° E W
S-ARC North =	24.56
S-ARC South =	28.65

**Quality Coring: None.**

**Comments:**

CUT-OFF WALL EXCAVATION				CUT-OFF WALL CONSTRUCTION									
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Drill (FT / HR)						
09/22/93	2	DHD130A	170		9.83		17.29	09/22/93			45	39.7	13.4%

Total Drill Time = 9.83 Hours  
Average Penetration Rate = 17.29 Feet / Hour

Total Redrill Time =  
Average Penetration Rate =  
None

Verticality Information

At Full Depth =	0° N/S X 2.5" E
S-ARC North =	28.65
S-ARC South =	17.51

Quality Coring: None.

**Comments:**

Secondary Pile # 464  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
07/27/93	1	DHD130A	170		13.83		12.29		07/28/93			53.5	39.7	34.8%	

Total Drill Time' = 13.83 Hours  
Average Penetration Rate = 12.29 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 5.57" S X 3.54" E  
S-ARC North = 17.51  
S-ARC South = 34.39

Quality Coring: None.

Comments: Cavity 41 - 52'

Primary Pile # 465  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
09/27/93	2	DHD130A	170		10.58		16.07		09/27/93			45	39.7	13.4%	

Total Drill Time = 10.58 Hours  
Average Penetration Rate = 16.07 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = .5" N X 1.5" E  
S-ARC North = 34.39  
S-ARC South = 22.38

Quality Coring: None.

Comments:

## CUT-OFF WALL EXCAVATION

Total Bedrill Time = None

### Verticality Information

**At Full Depth =**

S-ABC South = 27.13

Comments:

## Area "A"

## CUT-OFF WALL EXCAVATION

Total Redrill Time = None

## Verticality Information

S-ABC North = 27.13

**Quality Coring: None.**

**Comments:**



CUT-OFF WALL EXCAVATION				CUT-OFF WALL CONSTRUCTION										
Drilling Date	Equipment Rtg #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
08/07/93	1	DHD130A	171		11.00		15.55		08/09/93			69.5	39.9	74.0%

Total Redrill Time =

Average Penetration Rate =

None

At Full Depth =	1" N X 2" E
S-ARC North =	29.44
S-ARC South =	26.27

**Comments:** Connected to pile 438

CUT-OFF WALL EXCAVATION				CUT-OFF WALL CONSTRUCTION											
Drilling Date	Equipment	Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
				Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
10/01/93		2	DHD130A	170		12.41		13.70		10/02/93			46	39.7	15.9%

Total Redrill Time =  
Average Penetration Rate =  
None

At Full Depth =	.75° N X 0° E/W
S-ARC North =	26.27
S-ARC South =	22.94

**Comments:** See pile 470



Secondary Pile # 472  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
08/10/93	1	DHD130A	64		3.91		16.37		08/11/93		43.5		14.9	191.1%	
10/07/93	2	DHD130A	170	64	6.75	3.67	15.70	17.44	10/07/93			45	39.7	13.4%	

Total Drill Time = 10.66 Hours  
Average Penetration Rate = 15.95 Feet / Hour  
  
Total Redrill Time = 3.67 Hours  
Average Penetration Rate = 17.44 Feet / Hour

Vertically Information  
At Full Depth = 1.75" S X 1.5" E  
S-ARC North = 22.94  
S-ARC South = 29.04

Quality Coring: None.

Comments:

Primary Pile # 473  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION						
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time			Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)								
08/21/93	1	DHD130A	63		3.00		21.00			08/22/93		32		14.7	117.5%	
09/30/93	2	DHD130A	170	63	9.83	4.33	10.89	14.55		09/30/93			55.5	39.7	39.8%	

Total Drill Time = 12.83 Hours  
Average Penetration Rate = 13.25 Feet / Hour  
  
Total Redrill Time = 4.33 Hours  
Average Penetration Rate = 14.55 Feet / Hour

Vertically Information  
At Full Depth = 0" N/S X 3.58" E  
S-ARC North = 29.04  
S-ARC South = 26.69

Quality Coring: None.

Comments: Cavity at 62'

Secondary Pile # 474  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
08/16/93	1	DHD130A	60		2.43		24.69		08/17/93		19.5		14.0	39.2%	
10/11/93	2	DHD130A	170	60	7.41	3.50	14.84	17.14	10/11/93			45	39.7	13.4%	

Total Drill Time = 9.84 Hours  
Average Penetration Rate = 17.28 Feet / Hour  
  
Total Redrill Time = 3.50 Hours  
Average Penetration Rate = 17.14 Feet / Hour

Verticality Information  
At Full Depth = 0° N/S X 2° E  
S-ARC North = 26.69  
S-ARC South = 26.05

Quality Coring: None.

Comments: Cavity

Primary Pile # 475  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
09/28/93	2	DHD130A	170		13.25		12.83		09/28/93			48	39.7	20.9%	

Total Drill Time = 13.25 Hours  
Average Penetration Rate = 12.83 Feet / Hour  
  
Total Redrill Time = None  
Average Penetration Rate = None

Verticality Information  
At Full Depth = .5° S X 2.26° E  
S-ARC North = 26.05  
S-ARC South = 26.02

Quality Coring: None.

Comments:

Secondary Pile # 476  
Area "A"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Theoretical Volume (CU.YD.)
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)	
08/19/93	1	DHD130A	78		2.92		26.71		18.2
10/05/93	2	DHD130A	170	78	6.08	4.83	15.13	16.15	39.7

Total Drill Time = 9.00 Hours  
Average Penetration Rate = 18.89 Feet / Hour

Total Redrill Time = 4.83 Hours  
Average Penetration Rate = 16.15 Feet / Hour

Verticality Information  
At Full Depth = 1" S X 3" E  
S-ARC North = 26.02  
S-ARC South = 23.72

Quality Coring: None.

Comments:

Primary Pile # 477  
Area "A"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Theoretical Volume (CU.YD.)
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)	
09/24/93	2	DHD130A	170		11.67		14.57		49

Total Drill Time = 11.67 Hours  
Average Penetration Rate = 14.57 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate = None

Verticality Information  
At Full Depth = 3" S X 4.53" E  
S-ARC North = 23.72  
S-ARC South = 29.30

Quality Coring: None.

Comments: Part of verticality device lost in hole.

Secondary Pile # 478  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time			Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
08/17/93	1	DHD130A	62		1.83		33.88		08/18/93		32.5		14.5	124.5%	
10/02/93	2	DHD130A	170	62	7.50	4.17	14.40	14.87	10/04/93			45	39.7	13.4%	

Total Drill Time = 9.33 Hours  
Average Penetration Rate = 18.22 Feet / Hour  
  
Total Redrill Time = 4.17 Hours  
Average Penetration Rate = 14.87 Feet / Hour

Verticality Information  
At Full Depth = 1" S X 2" E  
S--ARC North = 29.30  
S--ARC South = 26.72

Quality Coring: None.

Comments: Cavity at 62'

Primary Pile # 479  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
09/20/93	2	DHD130A	175		14.92		11.73		09/21/93			100.5	40.9	145.9%

Total Drill Time = 14.92 Hours  
Average Penetration Rate = 11.73 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1" S X 3.27" E  
S--ARC North = 26.72  
S--ARC South = 19.10

Quality Coring: None.

Comments: Deep cavity at 165'-168'; other cavities also in pile.

Secondary Pile # 480  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate Drill (FT / HR)	Redrill (FT / HR)	Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
09/05/93	1	DHD130A	59		1.83		32.24		09/06/93		34		13.8	146.8%
10/06/93	2	DHD130A	170	59	6.83	3.60	16.25	16.39	11/03/93			45	39.7	13.4%

Total Drill Time = 8.66 Hours  
Average Penetration Rate = 19.63 Feet / Hour  
Total Redrill Time = 3.60 Hours  
Average Penetration Rate = 16.39 Feet / Hour

Verticality Information  
At Full Depth = 5.6" S X 0" E/W  
S-ARC North = 19.10  
S-ARC South = 30.82

Quality Coring: None.

Comments: Lost bit in hole; Cavity at 60' deep

Primary Pile # 481  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate Drill (FT / HR)	Redrill (FT / HR)	Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
09/16/93	2	DHD130A	170		10.67		15.93		09/17/93			48	39.7	20.9%

Total Drill Time = 10.67 Hours  
Average Penetration Rate = 15.93 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 2.5" S X 1.5" W  
S-ARC North = 30.82  
S-ARC South = 39.35

Quality Coring: None.

Comments:

Secondary Pile # 482  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time			Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
08/13/93	1	DHD130A	74		3.83			19.32		08/16/93		36		17.3	108.3%
11/09/93	1	DHD130A	170	74	4.83	1.42		19.88	52.11	11/09/93			42	39.7	5.8%

Total Drill Time = 8.66 Hours  
Average Penetration Rate = 19.63 Feet / Hour  
Total Redrill Time = 1.42 Hours  
Average Penetration Rate = 52.11 Feet / Hour

Verticality Information  
At Full Depth = 8.5" N X 2.76" E  
S--ARC North = 39.35  
S--ARC South = 11.83

Quality Coring: None.

Comments:

Primary Pile # 483  
Area "A"

Area A

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
09/15/93	2	DHD130A	170		11.25		15.11		09/15/93			55	39.7	38.5%

Total Drill Time = 11.25 Hours  
Average Penetration Rate = 15.11 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1.5" N X 5" W  
S--ARC North = 11.83  
S--ARC South = 18.63

Quality Coring: None.

Comments:

Secondary Pile # 484  
Area "A"

Area A

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time			Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
08/11/93	1	DHD130A	72		1.83			39.34		08/12/93		49		16.8	191.4%
10/26/93	2	DHD130A	170	72	4.50	3.33		21.78	21.62	10/26/93			46	39.7	15.9%

Total Drill Time = 6.33 Hours  
Average Penetration Rate = 26.86 Feet / Hour

Total Redrill Time = 3.33 Hours  
Average Penetration Rate = 21.62 Feet / Hour

Verticality Information  
At Full Depth = 3.5" S X 5.5" W  
S-ARC North = 18.63  
S-ARC South = 30.18

Quality Coring: None.

Comments:

Primary Pile # 485  
Area "A"

Area 'A'

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
09/13/93	2	240	172		8.25		20.85		09/14/93			91	40.2	126.6%

Total Drill Time = 8.25 Hours  
Average Penetration Rate = 20.85 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = .25" S X 0" EW  
S-ARC North = 30.18  
S-ARC South = 32.22

Quality Coring: None.

Comments: Connected with pile 455; cavity 49-65'

Secondary Pile # 486  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
07/21/93	1	DHD130A	72		2.33		30.90		07/22/93		42		16.8	149.8%
10/19/93	1	DHD130A	170	72	5.50	2.67	17.82	26.97	10/20/93			48	39.7	20.9%

Total Drill Time = 7.83 Hours  
Average Penetration Rate = 21.71 Feet / Hour  
  
Total Redrill Time = 2.67 Hours  
Average Penetration Rate = 26.97 Feet / Hour

Verticality Information  
At Full Depth = 4" N X 2" E  
S--ARC North = 32.22  
S--ARC South = 21.23

Quality Coring: None.

Comments:

Primary Pile # 487  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
09/10/93	2	DHD130A	170		10.58		16.07		09/10/93			76	39.7	91.4%

Total Drill Time = 10.58 Hours  
Average Penetration Rate = 16.07 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = .5" N X 0" E/W  
S--ARC North = 21.23  
S--ARC South = 28.68

Quality Coring: None.

Comments: Cavity 50-70' deep



Secondary Pile # 488  
Area 'A'

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION						
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)								
07/16/93	1	DHD130A	60		1.30		46.15			07/16/93		27		14.0	92.7%	
08/03/93	1	DHD130A	75	60	8.03	2.30	1.87			08/03/93		24		17.5	37.0%	
10/22/93	2	DHD130A	170	75	6.33	3.50	15.01			10/23/93			43	39.7	8.3%	

Total Drill Time = 15.66 Hours  
Average Penetration Rate = 10.86 Feet / Hour  
  
Total Redrill Time = 5.80 Hours  
Average Penetration Rate = 23.28 Feet / Hour

Verticality Information  
At Full Depth = 2' N X 2.26" E  
S--ARC North = 28.68  
S--ARC South = 31.00

Quality Coring: None.

Comments: Cavity at 63'

Primary Pile # 489  
Area 'A'

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION						
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete Volume (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak		
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)								
08/27/93	2	DHD130A	183.5		19.74			9.30	08/28/93			117	42.9	173.0%		

Total Drill Time = 19.74 Hours  
Average Penetration Rate = 9.30 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 5.21" N X 3.13" E  
S--ARC North = 31.00  
S--ARC South = No Overlap at Full Depth, Connected with Conforming Pile.

Quality Coring: None.

Comments: Used 489/490 conforming pile for sump. Lost air in hole at 157'.

Secondary Pile # 490  
Area "A"

Area A

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
07/12/93	1	DHD130A	57		1.67		34.13		07/12/93		23		13.3	72.8%
07/19/93	1	DHD130A	69	57	2.05	3.00	5.85	19.00	07/19/93		36		16.1	123.4%
10/30/93	2	DHD130A	170	69	10.33	3.50	9.78	19.71	10/30/93			44	39.7	10.8%

Total Drill Time = 14.05 Hours  
Average Penetration Rate = 12.10 Feet / Hour  
Total Redrill Time = 6.50 Hours  
Average Penetration Rate = 19.38 Feet / Hour

Verticality Information  
At Full Depth = 5.53° S X 3.52° E  
S-ARC North = No Overlap at Full Depth, Corrected With conforming Pile.  
S-ARC South = 23.51

Quality Coring: None.

Comments: Cavity at 69'

Primary Pile # 491  
Area "A"

Area 'A'

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
09/08/93	2	240	170		5.50		30.91		09/08/93			45	39.7	13.4%

Total Drill Time = 5.50 Hours  
Average Penetration Rate = 30.91 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 7.72° S X 3.09° E  
S-ARC North = 23.51  
S-ARC South = 37.83

Quality Coring: None.

Comments:

Secondary Pile # 492  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
07/06/93	1	DHD130A	90		6.75		13.33		07/07/93		49.5		21.0	135.5%
07/15/93	1	DHD130A	170	90	5.92	4.75	13.51	18.95	07/15/93			48	39.7	20.9%

Total Drill Time = 12.67 Hours  
Average Penetration Rate = 13.42 Feet / Hour

Total Redrill Time = 4.75 Hours  
Average Penetration Rate = 18.95 Feet / Hour

Verticality Information  
At Full Depth = 1.26" N X 2.28" E  
S-ARC North = 37.83  
S-ARC South = 28.50

Quality Coring: None.

Comments:

Primary Pile # 493  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
10/09/93	2	DHD130A	170		11.42		14.89		10/09/93			45	39.7	13.4%

Total Drill Time = 11.42 Hours  
Average Penetration Rate = 14.89 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 2.52" N X 2" E  
S-ARC North = 28.50  
S-ARC South = 21.32

Quality Coring: None.

Comments:

Secondary Pile # 494  
Area "A"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate (FT / HR)	Drill (FT / HR)	Redrill (FT / HR)
07/09/93	1	DHD130A	170		14.25		11.93		
			Concrete Date		07/10/93	Spec. Concrete (CU.YD.)		53.5	39.7
			Non-Spec. Concrete (CU.YD.)			Grout (CU.YD.)			34.8%

Total Drill Time = 14.25 Hours  
Average Penetration Rate = 11.93 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1" S X 2.75" E  
S-ARC North = 21.32  
S-ARC South = 24.89

Quality Coring: None.

Comments:

Primary Pile # 495  
Area "A"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate (FT / HR)	Drill (FT / HR)	Redrill (FT / HR)
10/25/93	2	XL-24	170		6.33		26.86		
			Concrete Date		10/25/93	Spec. Concrete (CU.YD.)		47.5	39.7
			Non-Spec. Concrete (CU.YD.)			Grout (CU.YD.)			19.7%

Total Drill Time = 6.33 Hours  
Average Penetration Rate = 26.86 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 2" S X 1" W  
S-ARC North = 24.89  
S-ARC South = 19.98

Quality Coring: None.

Comments:

Secondary Pile # 496  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
07/13/93	1	DHD130A	59		2.25		26.22		07/13/93		23		13.8	66.9%	
07/24/93	1	DHD130A	170	59	9.67	2.50	11.48	23.60	07/24/93		86		39.7	116.6%	
08/20/93	1	DHD130A	170	170		5.66		30.04	08/21/93			47	39.7	18.4%	

Total Drill Time = 11.92 Hours  
Average Penetration Rate = 14.26 Feet / Hour  
Total Redrill Time = 8.16 Hours  
Average Penetration Rate = 28.06 Feet / Hour

Verticality Information  
At Full Depth = 6.29° S X 0° E/W  
S-ARC North = 19.98  
S-ARC South = 30.92

Quality Coring: None.

Comments: Cavity at 59'; Hole collapsed.

Primary Pile # 497  
Area "B"

Area D

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak			
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
12/02/93	2	XL-24	170		4.92		34.55			57.5	39.7	44.8%			

Total Drill Time = 4.92 Hours  
Average Penetration Rate = 34.55 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 3.18° S X 0° E/W  
S-ARC North = 30.92  
S-ARC South = 21.99

Quality Coring: None.

Comments: Numerous air connection from pile 550 to 600

Secondary Pile # 498  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION									
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Drill (HRS)	Redrill (HRS)	Penetration Rate (FT / HR)	Redrill (FT / HR)	Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak				
08/16/93	1	DHD130A	70		3.17			22.08		08/17/93				16.3	132.5%				
10/27/93	2	240	74	70	0.33		2.25	12.12	31.11	10/28/93		63		17.3	264.6%				
12/11/93	2	XL-24	170	74	3.25		2.67	29.54	27.72	12/11/93			47	39.7	18.4%				

Total Drill Time = 6.75 Hours  
Average Penetration Rate = 25.19 Feet / Hour  
  
Total Redrill Time = 4.92 Hours  
Average Penetration Rate = 29.27 Feet / Hour

Verticality Information  
At Full Depth = 6.26" S X 1.5" E  
S-ARC North = 21.99  
S-ARC South = 33.15

Quality Coring: None.

Comments: Cavity 50'-70' deep

Primary Pile # 499  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION									
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Drill (HRS)	Redrill (HRS)	Penetration Rate (FT / HR)	Redrill (FT / HR)	Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak				
12/07/93	2	DHD130A	170		16.33			10.41		12/08/93			95	39.7	139.3%				

Total Drill Time = 16.33 Hours  
Average Penetration Rate = 10.41 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1" S X 2" W  
S-ARC North = 33.15  
S-ARC South = 24.71

Quality Coring: None.

Comments:

Secondary Pile #500  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
10/20/93	1	XL-24	46		0.83			55.42	10/21/93		37		10.7	244.4%
11/05/93	1	DHD130A	78	46	1.67	5.50	19.16	8.36	11/06/93		34		18.2	86.7%
01/06/94	2	DHD130A	186	78	9.34	4.75	11.56	16.42	01/06/94			49.5	43.4	14.0%

Total Drill Time = 11.84 Hours  
Average Penetration Rate = 15.71 Feet / Hour  
Total Redrill Time = 10.25 Hours  
Average Penetration Rate = 12.10 Feet / Hour

Verticality Information  
At Full Depth = 2.5" South X 0" East / West  
S-ARC North = 26.52"  
S-ARC South = 31.71"

Quality Coring: None.

Comments:

Primary Pile #501  
Area "B"

CUT-OFF WALL EXCAVATION														CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak				
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)										
12/14/93	2	XL-24	185		8.33		22.21		12/15/93			53	43.2	22.7%				

Total Drill Time = 8.33 Hours  
Average Penetration Rate = 22.21 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1.25" North X 1.0" West  
S-ARC North = 31.71"  
S-ARC South = 29.92"

Quality Coring: None.

Comments:

Secondary Pile #502  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
11/02/93	2	DHD130A	66		2.00		33.00		11/02/93		39		15.4	153.0%
01/11/94	1	DHD130A	185	66	7.42	3.07	16.04	21.50	01/12/94			51	43.2	18.1%

Total Drill Time = 9.42 Hours  
Average Penetration Rate = 19.64 Feet / Hour  
  
Total Redrill Time = 3.07 Hours  
Average Penetration Rate = 21.50 Feet / Hour

Verticality Information

At Full Depth = 3.5" North X 1.0" West  
S-ARC North = 29.92"  
S-ARC South = No Overlap at Full Depth, Overlap Achieved with Conforming Pile.

Quality Coring: None.

Comments:

Primary Pile #503  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
11/08/93	1	DHD130A	83		3.92		21.17		11/30/93		45		19.4	132.2%
05/18/93	2	XL-24	185	83	3.66	3.50	27.87	23.71	05/19/94			48	43.2	11.1%

Total Drill Time = 7.58 Hours  
Average Penetration Rate = 24.41 Feet / Hour  
  
Total Redrill Time = 3.50 Hours  
Average Penetration Rate = 23.71 Feet / Hour

Verticality Information

At Full Depth = 10.5" North X 6.0" West  
S-ARC North = No Overlap at Full Depth, Overlap Achieved with Conforming Pile.  
S-ARC South = 31.38"

Quality Coring: None.

Comments:



Secondary Pile #504  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
11/04/93	1	DHD130A	64		1.58		40.51		11/04/93		28.5		14.9	90.7%
05/04/94	1	DHD130A	185	64	8.21	3.12	14.74	20.51	05/04/94			47	43.2	8.8%

Total Drill Time = 9.79 Hours  
Average Penetration Rate = 18.90 Feet / Hour  
  
Total Redrill Time = 3.12 Hours  
Average Penetration Rate = 20.51 Feet / Hour

Verticality Information  
At Full Depth = 7.0" South X 5.5" West  
S-ARC North = 31.38"  
S-ARC South = 36.40"

Quality Coring: None.

Comments:

Primary Pile #505  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
04/11/94	2	DHD 130A	80		4.50		17.78		04/11/94	32.5			18.7	74.0%
06/14/94	1	DHD 130A	185	80	5.25	2.00	20.00	40.00	06/15/94			47	43.2	8.8%

Total Drill Time = 9.75 Hours  
Average Penetration Rate = 18.97 Feet / Hour  
  
Total Redrill Time = 2.00 Hours  
Average Penetration Rate = 40.00 Feet / Hour

Verticality Information  
At Full Depth = 1.0" North X 2.25" West  
S-ARC North = 36.40"  
S-ARC South = No Overlap at Full Depth, Overlap Achieved with Conforming Pile.

Quality Coring: None.

Comments:

Secondary Pile #506  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time			Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
01/13/94	2	DHD130A	74		4.75		15.58			01/31/94	12			17.3	-30.6%
02/11/94	2	XL-24	135	74	2.35	1.40	25.96	52.86		02/18/94	86	16		31.5	223.6%
04/20/94	1	DHD130A	185	135	6.00	4.59	8.33	29.41		04/20/94			48	43.2	11.1%

Total Drill Time = 13.10 Hours  
Average Penetration Rate = 14.12 Feet / Hour  
  
Total Redrill Time = 5.99 Hours  
Average Penetration Rate = 34.89 Feet / Hour

Verticality Information  
At Full Depth = 14.8" South X 9.25" West  
S-ARC North = No Overlap at Full Depth, Overlap Achieved with Conforming Pile.  
S-ARC South = 38.51"

Quality Coring: None.

Comments:

On 1/31/94 12 cu.yds. of grout was placed in Pile #506 before grout pump broke down

Primary Pile #507  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
04/06/94	2	DHD130A	107		3.75		28.53		04/06/94	35	1		25.0	44.1%
06/20/94	1	XL-24	185	107	2.92	2.58	26.71	41.47	06/21/94			47	43.2	8.8%

Total Drill Time = 6.67 Hours  
Average Penetration Rate = 27.74 Feet / Hour  
  
Total Redrill Time = 2.58 Hours  
Average Penetration Rate = 41.47 Feet / Hour

Verticality Information  
At Full Depth = 5.0" South X 6.75" West  
S-ARC North = 38.51"  
S-ARC South = 21.73"

Quality Coring: None.

Comments:

Secondary Pile #508  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
03/18/94	2	DHD130A	66		2.92			22.60	03/18/94	45			15.4	192.0%
04/30/94	1	DHD130A	185		7.25	66	1.68	16.41	05/02/94			48	43.2	11.1%

Total Drill Time = 10.17 Hours  
Average Penetration Rate = 18.19 Feet / Hour  
Total Redrill Time = 1.68 Hours  
Average Penetration Rate = 39.29 Feet / Hour

Verticality Information  
At Full Depth = 8.25" South X 5.25" West  
S-ARC North = 21.73"  
S-ARC South = 27.80"

Quality Coring: None.

Comments:

Primary Pile #509  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment		Drill Footage		Pure Drill Time			Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
	Rig #	Excavation Method	Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
04/12/94	2	DHD130A	85		3.67		23.16		04/13/94	40			19.8	101.5%	
07/01/94	1	XL-24	185	85	3.58	2.17	27.93	39.17	07/05/94			48	43.2	11.1%	

Total Drill Time = 7.25 Hours  
Average Penetration Rate = 25.52 Feet / Hour  
Total Redrill Time = 2.17 Hours  
Average Penetration Rate = 39.17 Feet / Hour

Verticality Information  
At Full Depth = 6.5" South X 1.5" East  
S-ARC North = 27.80"  
S-ARC South = 19.40"

Quality Coring: None.

Comments:

Secondary Pile #510  
Area "B"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage Drill (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate Drill (FT / HR)	Redrill (FT / HR)	
03/21/94	2	DHD130A	65		1.50		43.33		
05/05/94	1	XL-24	185	65	4.17	1.08	28.78	60.19	

Total Drill Time = 5.67 Hours  
Average Penetration Rate = 32.63 Feet / Hour

Total Redrill Time = 1.08 Hours  
Average Penetration Rate = 60.19 Feet / Hour

Verticality Information  
At Full Depth = 11" South X 1.0" West  
S-ARC North = 19.40"  
S-ARC South = 42.21"

Quality Coring: None.

Comments:

Primary Pile #511  
Area "B"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage Drill (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate Drill (FT / HR)	Redrill (FT / HR)	
04/14/94	2	DHD130A	109		4.25		25.65		
06/28/94	1	XL-24	185	109	2.67	2.91	28.46	37.46	

Total Drill Time = 6.92 Hours  
Average Penetration Rate = 26.73 Feet / Hour

Total Redrill Time = 2.91 Hours  
Average Penetration Rate = 37.46 Feet / Hour

Verticality Information  
At Full Depth = 2.0" North X 0.5" West  
S-ARC North = 42.21"  
S-ARC South = 36.77"

Quality Coring: None.

Comments:

Secondary Pile #512  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
03/24/94	2	DHD130A	62		1.67		37.13		03/24/94	20		2.2	14.5	53.3%	
05/11/94	1	XL-24	185	62	5.09	1.00	24.17	62.00	05/11/94			49	43.2	13.4%	

Total Drill Time = 6.76 Hours  
Average Penetration Rate = 27.37 Feet / Hour  
  
Total Redrill Time = 1.00 Hours  
Average Penetration Rate = 62.00 Feet / Hour

Verticality Information  
At Full Depth = 11" North X 5.0" East  
S-ARC North = 36.77"  
S-ARC South = 7.77"

Quality Coring: None.

Comments:

Primary Pile #513  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
04/08/94	2	DHD130A	84		4.43		18.96		04/08/94	37			19.6	88.6%	
06/06/94	1	DHD130A	185	84	8.33		12.12	3.33	06/07/94			47	43.2	8.8%	

Total Drill Time = 12.76 Hours  
Average Penetration Rate = 14.50 Feet / Hour  
  
Total Redrill Time = 3.33 Hours  
Average Penetration Rate = 25.23 Feet / Hour

Verticality Information  
At Full Depth = 2.75" North X 2.25" West  
S-ARC North = 7.77"  
S-ARC South = 24.94"

Quality Coring: None.

Comments:

Secondary Pile #514  
Area "B"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate (FT / HR)	Drill (FT / HR)	Redrill (FT / HR)
03/23/94	1	DHD130A	63		1.08		58.33		
05/13/94	2	DHD130A	95	63	1.67	2.50	19.16		25.20
07/20/94	2	DHD130A	185	95	8.10	6.83	11.11		13.91
								20	
									27
									47
									14.7
									22.2
									43.2
									35.9%
									21.7%
									8.8%

Total Drill Time = 10.85 Hours  
Average Penetration Rate = 17.05 Feet / Hour  
  
Total Redrill Time = 9.33 Hours  
Average Penetration Rate = 16.93 Feet / Hour

Vertically Information  
At Full Depth = 2.0' North X 2.5' East  
S-ARC North = 24.94"  
S-ARC South = 13.84"

Quality Coring: None.  
Comments:

Primary Pile #515  
Area "B"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate (FT / HR)	Drill (FT / HR)	Redrill (FT / HR)
04/22/94	1	DHD130A	94		3.50		26.86		
05/26/94	1	XL-24	185	94	3.67	1.83	24.80		51.37
								33	
									3.6
									48
									22.0
									43.2
									66.7%
									11.1%

Total Drill Time = 7.17 Hours  
Average Penetration Rate = 25.80 Feet / Hour  
  
Total Redrill Time = 1.83 Hours  
Average Penetration Rate = 51.37 Feet / Hour

Vertically Information  
At Full Depth = 3.0' South X 9.0' West  
S-ARC North = 13.84"  
S-ARC South = 29.51"

Quality Coring: None.  
Comments:

Secondary Pile #516  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
03/19/94	2	DHD130A	65		2.17		29.95		03/19/94	89			15.2	486.3%
05/16/94	2	DHD130A	110	65	2.50	1.83	18.00	35.52	05/17/94		33		25.7	28.5%
06/22/94	2	XL-24	185	110	4.46	1.04	16.82	105.77	06/23/94			47	43.2	8.8%

Total Drill Time = 9.13 Hours  
Average Penetration Rate = 20.26 Feet / Hour  
  
Total Redrill Time = 2.87 Hours  
Average Penetration Rate = 60.98 Feet / Hour

Verticality Information  
At Full Depth = 0° North / South X 2.5° West  
S-ARC North = 29.51"  
S-ARC South = 30.32"

Comments:

Primary Pile #517  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
04/19/94	1	DHD130A	120		8.08		14.85		04/19/94	48			28.0	71.3%	
05/24/94	1	XL-24	185	120	2.33	2.92	27.90	41.10	05/25/94			47	43.2	8.8%	

Total Drill Time = 10.41 Hours  
Average Penetration Rate = 17.77 Feet / Hour  
  
Total Redrill Time = 2.92 Hours  
Average Penetration Rate = 41.10 Feet / Hour

Verticality Information  
At Full Depth = 4.0° North X 5.0° East  
S-ARC North = 30.32"  
S-ARC South = 17.64"

Quality Coring: None.

Comments:

Secondary Pile #518  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage Drill (FT)	Redrill (FT)	Pure Drill Time Drill (HRS)	Redrill (HRS)	Penetration Rate Drill (FT / HR)	Redrill (FT / HR)	Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
12/13/93	1	DHD130A	63		7.50		8.40		12/13/93		45.5		14.7	209.3%
03/22/94	1	DHD130A	65	63	0.02	3.23	100.00	19.50	03/22/94	25			15.2	64.7%
05/13/94	2	DHD130A	120	65	3.13	1.28	17.57	50.78	05/13/94		48		28.0	71.3%
08/02/94	1	DHD130A	185	120	4.42	7.83	14.71	15.33	08/03/94			47	43.2	8.8%

Total Drill Time = 15.07 Hours  
Average Penetration Rate = 12.28 Feet / Hour  
Total Redrill Time = 12.34 Hours  
Average Penetration Rate = 20.10 Feet / Hour

Verticality Information  
At Full Depth = 1.5" South X 5.5" East  
S-ARC North = 17.64"  
S-ARC South = 19.54"

Quality Coring: None.

Comments:

Primary Pile #519  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage Drill (FT)	Redrill (FT)	Pure Drill Time Drill (HRS)	Redrill (HRS)	Penetration Rate Drill (FT / HR)	Redrill (FT / HR)	Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
03/31/94	1	DHD130A	117		5.83		20.07		03/31/94	48			27.3	75.7%
06/02/94	1	XL-24	185	117	2.70	2.89	25.19	40.48	06/03/94			50	43.2	15.7%

Total Drill Time = 8.53 Hours  
Average Penetration Rate = 21.69 Feet / Hour  
Total Redrill Time = 2.89 Hours  
Average Penetration Rate = 40.48 Feet / Hour

Verticality Information  
At Full Depth = 6.0" South X 7.0" East  
S-ARC North = 19.54"  
S-ARC South = 34.43"

Quality Coring: None.

Comments:



Secondary Pile # 520  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
10/19/93	1	XL-24	60		0.58		103.45		10/19/93		29		14.0	107.0%
11/06/93	1	DHD130A	75	60	0.84	5.25	17.86	11.43	11/06/93		32		17.5	82.7%
03/24/94	1	DHD130A	78	75	0.03	3.64	100.00	20.60	03/24/94	25	2		18.2	48.2%
05/17/94	2	DHD130A	115	78	2.51	2.33	14.74	33.48	05/18/94		31		26.9	15.4%
07/22/94	2	DHD130A	185	115	3.50	5.00	20.00	23.00	07/22/94			47	43.2	8.8%

Total Drill Time = 7.46 Hours  
Average Penetration Rate = 24.80 Feet / Hour  
  
Total Redrill Time = 16.22 Hours  
Average Penetration Rate = 20.22 Feet / Hour

Vertically Information  
At Full Depth = 1" North X 13" East  
S-ARC North = 19.54  
S-ARC South = 24.53

Quality Coring: None.  
Comments:

Primary Pile # 521  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
04/16/94	2	DHD130A	87		4.41		19.73		04/18/94	25	1.5		20.3	30.4%
06/17/94	1	XL-24	185	87	3.84	1.58	25.52	55.06	06/17/94			47	43.2	8.8%

Total Drill Time = 8.25 Hours  
Average Penetration Rate = 22.42 Feet / Hour  
  
Total Redrill Time = 1.58 Hours  
Average Penetration Rate = 55.06 Feet / Hour

Vertically Information  
At Full Depth = 4" North X 1.5" West  
S-ARC North = 34.43  
S-ARC South = 15.43

Quality Coring: None.  
Comments:

Secondary Pile # 522  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION									
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Redrill		Penetration Rate		Concrete Date	GROUT (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak			
09/17/94	1	DHD130A	64		1.17				54.70		10/13/93		23		14.9	53.9%			
04/02/94	1	DHD130A	63			63		5.17			04/02/94	29		2	14.7	110.7%			
05/31/94	1	DHD130A	115		2.00	64		1.08	25.50		06/01/94		31		26.9	15.4%			
08/05/94	2	DHD130A	185		5.97	115		6.08	11.73		08/08/94			47	43.2	8.8%			

Total Drill Time = 9.14 Hours  
Average Penetration Rate = 20.24 Feet / Hour  
Total Redrill Time = 12.33 Hours  
Average Penetration Rate = 19.63 Feet / Hour

Verticality Information  
At Full Depth = 2.5 South X 0° E/W  
S--ARC North = 24.53  
S--ARC South = 31.85

Quality Coring: None.

Comments: Connected with pile 552

Primary Pile # 523  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION									
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Redrill		Penetration Rate		Concrete Date	GROUT (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak			
04/13/94	2	DHD130A	115		6.33				18.17		04/13/94		1		26.9	30.3%			
06/14/94	1	XL-24	185		2.83	115		2.50	24.73		06/14/94			47	43.2	8.8%			

Total Drill Time = 9.16 Hours  
Average Penetration Rate = 20.20 Feet / Hour  
Total Redrill Time = 2.50 Hours  
Average Penetration Rate = 46.00 Feet / Hour

Verticality Information  
At Full Depth = 4" North X 10° east  
S--ARC North = 15.43  
S--ARC South = 35.59

Quality Coring: None.

Comments:

Secondary Pile # 524  
Area "B"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage Drill (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate Drill (FT / HR)	Redrill (FT / HR)	Concrete Date
12/09/94	2	DHD130A	60		3.50		17.14		12/09/93
05/05/94	1	DHD130A	185	60	6.77	2.39	18.46	25.10	05/05/94

Total Drill Time = 10.27 Hours  
Average Penetration Rate = 18.01 Feet / Hour

Total Redrill Time = 2.39 Hours  
Average Penetration Rate = 25.10 Feet / Hour

Verticality Information  
At Full Depth = 11" North X 10" east  
S-ARC North = 31.85  
S-ARC South = 17.24

Quality Coring: None.

Comments:

Primary Pile # 525  
Area "B"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage Drill (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate Drill (FT / HR)	Redrill (FT / HR)	Concrete Date
03/28/94	1	DHD130A	97		5.00		19.40		03/29/94
06/28/94	1	XL-24	185	97	5.12	0.21	17.19	461.90	06/08/94

Total Drill Time = 10.12 Hours  
Average Penetration Rate = 18.28 Feet / Hour

Total Redrill Time = 0.21 Hours  
Average Penetration Rate = 461.90 Feet / Hour

Verticality Information  
At Full Depth = 7" North X 0" E/W  
S-ARC North = 35.59  
S-ARC South = 21.81

Quality Coring: None.

Comments:

Secondary Pile # 526  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
03/17/94	2	DHD130A	63		1.83		34.43		03/15/94	58			14.7	294.2%
04/21/94	1	DHD130A	185	63	8.83	3.00	13.82	21.00	04/21/94			50	43.2	15.7%

Total Drill Time = 10.66 Hours  
Average Penetration Rate = 17.35 Feet / Hour  
  
Total Redrill Time = 3.00 Hours  
Average Penetration Rate = 21.00 Feet / Hour

Verticality Information  
At Full Depth = 3.77 North X 0° E/W  
S--ARC North = 17.24  
S--ARC South =  
No Overlap at Full Depth, Overlap Achieved with Conforming Pile.

Quality Coring: None.

Comments:

Primary Pile # 527  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
04/06/94	1	DHD130A	83		3.17		26.18		04/06/94	40			19.4	106.4%
07/07/94	2	DHD130A	185		9.16	4.67	11.14	17.77	07/08/94			48	43.2	11.1%

Total Drill Time = 12.33 Hours  
Average Penetration Rate = 15.00 Feet / Hour  
  
Total Redrill Time = 4.67 Hours  
Average Penetration Rate = 17.77 Feet / Hour

Verticality Information  
At Full Depth = 5.5° South X 12.75° West  
S--ARC North = 21.81  
S--ARC South = 25.55

Quality Coring: None.

Comments:

Secondary Pile # 528  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
03/19/94	2	DHD130A	65		1.58		41.14		03/19/94	42			15.2	176.7%	
05/03/94	1	DHD130A	185		9.62	2.08	12.47	31.25	05/03/94			48	43.2	11.1%	

Total Drill Time = 11.20 Hours  
Average Penetration Rate = 16.52 Feet / Hour  
  
Total Redrill Time = 2.08 Hours  
Average Penetration Rate = 31.25 Feet / Hour

Verticality Information  
At Full Depth = 4.75 South X 4" West  
S-ARC North =  
S-ARC South = 32.92

Quality Coring: None.

Comments:

Primary Pile # 529  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
04/11/94	2	DHD130A	81		3.83			21.15		04/11/94	32			18.9	69.2%
06/20/94	1	XL-24	185	81	3.58	2.08	29.05	38.94		06/21/94			47	43.2	8.8%

Total Drill Time = 7.41 Hours  
Average Penetration Rate = 24.97 Feet / Hour  
  
Total Redrill Time = 2.08 Hours  
Average Penetration Rate = 38.94 Feet / Hour

Verticality Information  
At Full Depth = 0°N/S X 3" West  
S-ARC North = 25.55  
S-ARC South = 35.33

Quality Coring: None.

Comments:

Secondary Pile # 530  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time			Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
03/21/94	2	DHD130A	64		1.08		59.26			03/21/94	40			14.9	167.6%
05/09/94	1	XL-24	185	64	4.68	1.00	25.85	64.00		05/10/94			49	43.2	13.4%

Total Drill Time = 5.76 Hours  
Average Penetration Rate = 32.12 Feet / Hour  
  
Total Redrill Time = 1.00 Hours  
Average Penetration Rate = 64.00 Feet / Hour

Vertically Information  
At Full Depth = 8.25' North X 4" East  
S-ARC North = 2.92  
S-ARC South = No Overlap at Full Depth, Overlap Achieved with Conforming Pile

Quality Coring: None.

Comments:

Primary Pile # 531  
Area "B"

Area B

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time			Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
04/08/94	2	DHD130A	85		3.92		21.68			04/08/94	100	2		19.8	413.9%
06/07/94	1	DHD130A	185	85	6.92	4.67	14.45	18.20		06/07/94			47	43.2	8.8%

Total Drill Time = 10.84 Hours  
Average Penetration Rate = 17.07 Feet / Hour  
  
Total Redrill Time = 4.67 Hours  
Average Penetration Rate = 18.20 Feet / Hour

Vertically Information  
At Full Depth = 2.5' South X 4" West  
S-ARC North = 5.33  
S-ARC South = 3.94

Quality Coring: None.

Comments:

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
03/23/94	1	DHD130A	64		1.17		54.70		03/23/94	20			14.9	33.8%
05/16/94	2	DHD130A	85	64	1.35	3.06	15.56	20.92	05/16/94		24		19.8	20.9%
07/01/94	1	XL-24	185	85	2.75	2.67	36.36	31.84	07/05/94			48	43.2	11.1%

Verity Information

At Full Depth = 3.5" North X 8" West

S - ARC North = 28.15

S - ARC South =

Primary Pile # 533  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)	Drill (FT / HR)						
04/14/94	2	DHD130A	83		3.75		22.13			04/14/94	25	1		19.4	34.1%
05/27/94	1	XL-24	185	83	4.08	1.67	25.00		49.70	05/27/94			48	43.2	11.1%

Verticality Information

At Full Depth =	5° North X 3.25° West
S - APC North =	33.94
S - APC South =	28.82

Quality Coring: None.

Comments:

Secondary Pile # 534  
Area "B"

Area B

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
03/29/94	1	DHD130A	64		1.50		42.67		03/29/94	44	2		14.9	207.8%	
05/16/94	1	DHD130A	95	64	1.70	2.80	18.24	22.86	05/17/94		27.5		22.2	24.0%	
07/19/94	2	DHD130A	185	95	3.17	5.50	28.39	17.27	07/19/94			47	43.2	8.8%	

Total Drill Time = 6.37 Hours  
Average Penetration Rate = 19.00 Feet / Hour  
  
Total Redrill Time = 8.30 Hours  
Average Penetration Rate = 19.16 Feet / Hour

Verticality Information  
At Full Depth = 6.5" North X 3.5" West  
S-ARC North = 28.15  
S-ARC South = 24.21

Quality Coring: None.

Comments:

Primary Pile # 535  
Area "B"

Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Redrill (FT)	Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
04/19/94	1	DHD130A	108		4.33		24.94		04/19/94	27	8		25.2	38.8%	
05/24/94	1	XL-24	185	108	3.42	2.25	22.51	48.00	05/25/94				47	43.2	8.8%

Total Drill Time = 7.75 Hours  
Average Penetration Rate = 9.94 Feet / Hour  
  
Total Redrill Time = 2.25 Hours  
Average Penetration Rate = 48.00 Feet / Hour

Verticality Information  
At Full Depth = 5" North X 7" West  
S-ARC North = 28.82  
S-ARC South = 12.12

Quality Coring: None.

Comments:



Secondary Pile # 536  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
03/30/94	1	DHD130A	62		1.58		39.24		03/30/94	30			14.5	107.2%
05/11/94	2	DHD130A	100	62	1.87	2.21	20.32	28.05	05/13/94		32		23.4	37.0%
07/20/94	2	DHD130A	185	100	9.08	7.00	9.36	14.29	07/21/94			47	43.2	8.8%

Total Drill Time = 12.53 Hours  
Average Penetration Rate = 9.82 Feet / Hour  
  
Total Redrill Time = 9.21 Hours  
Average Penetration Rate = 17.59 Feet / Hour

Verticality Information  
At Full Depth = 1.75" South X 1.25" East  
S-ARC North = 24.21  
S-ARC South = 27.76

Quality Coring: None.

Comments: Contractor reported that an additional 35 cy of grout went into this hole, this grout however was used top to off several piles and is not included above.

Primary Pile # 537  
Area "B"

Area B

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time			Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
04/27/94	1	DHD130A	94		4.33		21.71			04/28/94	30	7		22.0	68.6%
06/02/94	1	XL-24	185	94	3.00	2.25	30.33	41.78		06/03/94			47	43.2	8.8%

Total Drill Time = 7.33 Hours  
Average Penetration Rate = 12.41 Feet / Hour  
  
Total Redrill Time = 2.25 Hours  
Average Penetration Rate = 41.78 Feet / Hour

Verticality Information  
At Full Depth = 1" South X 0" E/W  
S-ARC North = 12.12  
S-ARC South = 30.80

Quality Coring: None.

Comments:

Secondary Pile # 538  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
03/26/94	1	DHD130A	62		1.75		35.43		03/28/94	30	2		14.5	121.0%	
05/17/94	2	DHD130A	110	62	2.03	1.72	23.65	36.05	05/18/94		31		25.7	20.7%	
07/30/94	2	XL-24	185	110	3.00	3.72	25.00	29.57	08/01/94			49	43.2	13.4%	

Total Drill Time = 6.78 Hours  
Average Penetration Rate = 18.14 Feet / Hour  
Total Redrill Time = 5.44 Hours  
Average Penetration Rate = 31.62 Feet / Hour

Verticality Information  
At Full Depth = 2" North X 0" E/W  
S-ARC North = 27.76  
S-ARC South = 25.29

Quality Coring: None.

Comments:

Primary Pile # 539  
Area "B"

Area B

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
04/21/94	1	DHD130A	116		2.83			40.99	04/22/94	30			27.1	10.7%	
06/24/94	1	XL-24	185	116	3.58	1.25	19.27	92.80	06/04/94			47	43.2	8.8%	

Total Drill Time = 6.41 Hours  
Average Penetration Rate = 10.76 Feet / Hour  
Total Redrill Time = 1.25 Hours  
Average Penetration Rate = 92.80 Feet / Hour

Verticality Information  
At Full Depth = 1" North X 1" West  
S-ARC North = 30.80  
S-ARC South = 29.12

Quality Coring: None.

Comments:

Secondary Pile #540  
Area "B"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Pig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate (FT / HR)	Drill (FT / HR)	Overbreak
03/24/94	1	DHD130A	65		1.93		33.68		46.3%
05/31/94	1	DHD130A	110	65	1.70	1.80	26.47	36.11	12.9%
07/25/94	2	XL-24	185	110	7.79	5.00	9.63	22.00	22.7%

Total Drill Time = 11.42 Hours  
Average Penetration Rate = 16.20 Feet / Hour  
Total Redrill Time = 6.80 Hours  
Average Penetration Rate = 25.74 Feet / Hour

Vertically Information  
At Full Depth = 2.75" North X 0" East / West  
S-ARC North = 29.12"  
S-ARC South = 22.60"

Quality Coring: None.

Comments:

Primary Pile #541  
Area "B"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Pig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate (FT / HR)	Drill (FT / HR)	Overbreak
04/18/94	1	DHD130A	110		5.42		20.30		36.3%
06/21/94	1	DHD130A	185	110	4.95	1.25	15.15	88.00	27.3%

Total Drill Time = 10.37 Hours  
Average Penetration Rate = 17.84 Feet / Hour  
Total Redrill Time = 1.25 Hours  
Average Penetration Rate = 88.00 Feet / Hour

Vertically Information  
At Full Depth = 0" North / South X 0" East / West  
S-ARC North = 22.60"  
S-ARC South = 36.62"

Quality Coring: None.

Comments:

Secondary Pile #542  
Area "B"

Area B

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION									
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
03/22/94	1	DHD130A	63		2.25		28.00		03/22/94	30			14.7	103.9%
05/11/94	2	DHD130A	110	63	1.42	3.25	33.10	19.38	05/12/94	25	6		25.7	20.7%
06/16/94	1	DHD130A	110	110		3.75		29.33	06/17/94		31		25.7	20.7%
07/28/94	2	XL-24	185	110	2.75	6.75	27.27	16.30	07/29/94			48	43.2	11.1%

Total Drill Time = 6.42 Hours  
Average Penetration Rate = 28.82 Feet / Hour  
  
Total Redrill Time = 13.75 Hours  
Average Penetration Rate = 20.58 Feet / Hour

Verticality Information  
At Full Depth = 8.0" North X 2.0" West  
S-ARC North = 36.62"  
S-ARC South = 16.73"

Quality Coring: None.

Comments:

Primary Pile #543  
Area "B"

Area B

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time			Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
04/05/94	2	DHD130A	123		4.40		27.95			04/06/94	45	1.0		28.7	60.2%
06/14/94	1	XL-24	185	123	2.50	2.42	24.80	50.83		06/14/94			49	43.2	13.4%

Total Drill Time = 6.90 Hours  
Average Penetration Rate = 26.81 Feet / Hour  
  
Total Redrill Time = 2.42 Hours  
Average Penetration Rate = 50.83 Feet / Hour

Verticality Information  
At Full Depth = 2.5" North X 3.25" East  
S-ARC North = 16.73"  
S-ARC South = 29.96"

Quality Coring: None.

Comments:

Secondary Pile #544  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION						
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak		
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)								
03/18/94	2	DHD130A	64		2.75		23.27		03/18/94	50			14.9	234.6%		
05/05/94	1	XL-24	185	64	3.83	1.00	31.59	64.00	05/05/94			50	43.2	15.7%		

Total Drill Time = 6.58 Hours  
Average Penetration Rate = 28.12 Feet / Hour  
  
Total Redrill Time = 1.00 Hours  
Average Penetration Rate = 64.00 Feet / Hour

Verticality Information  
At Full Depth = 2.75" North X 5.5" East  
S-ARC North = 29.96"  
S-ARC South =

Quality Coring: None.

Comments:

Primary Pile #545  
Area "B"

Area D

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION						
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time			Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)								
03/29/94	1	DHD130A	98		3.33		29.43				03/30/94	53			22.9	131.6%
07/05/95	2	DHD130A	185	98	5.87	4.73	14.82		20.72		07/07/94			47	43.2	8.8%

Total Drill Time = 9.20 Hours  
Average Penetration Rate = 20.11 Feet / Hour  
  
Total Redrill Time = 4.73 Hours  
Average Penetration Rate = 20.72 Feet / Hour

Verticality Information  
At Full Depth = 10" South X 6.5" West  
S-ARC North = 36.88"  
S-ARC South =

Quality Coring: None.

Comments:

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment	Fig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
				Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
03/16/94		1	DHD130A		61		2.25		27.11		45			14.2	215.9%
04/29/94		1	XL-24		185	61	4.08	1.17	30.39	52.14			51	43.2	18.1%

Verticality Information

At Full Depth =	0° North / South X 1.0" East
S-ARC North =	36.88"
S-ARC South =	31.04"

**Comments:**

CUT-OFF WALL EXCAVATION				CUT-OFF WALL CONSTRUCTION										
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
04/11/94	2	DHD130A	95		4.58		20.74		04/12/94	38			22.2	71.3%
05/18/94	2	XL-24	186		3.08	2.17	29.55	43.78	05/19/94			49	43.4	12.8%

Verticality Information

At Full Depth =	3.5" North X 2.5" West
S - APC North =	31.04"
S - APC South =	22.99"

**Comments:** 115' of tremie pipe left in hole. Was hung at bottom of hole due to fast setting concrete.

Secondary Pile #548  
Area "B"

Area D

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time			Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
12/16/93	2	DHD130A	54		3.00		18.00		12/16/93	54	48		12.6	708.9%	
04/02/94	1	DHD130A	65	54	0.25	3.33	44.00	16.22	04/02/94	24	1.4		15.2	67.3%	
05/03/94	1	DHD130A	185	65	8.09	1.18	14.83	55.08	05/03/94			48	43.2	11.1%	

Total Drill Time = 11.34 Hours  
Average Penetration Rate = 16.31 Feet / Hour  
  
Total Redrill Time = 4.51 Hours  
Average Penetration Rate = 26.39 Feet / Hour

Verticality Information  
At Full Depth = 1.0° North X 1.5° West  
S-ARC North = 22.99"  
S-ARC South = 27.05"

Quality Coring: None.

Comments:

Primary Pile #549  
Area "B"

Area B

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Penetration Rate				Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Pure Drill Time (HRS)	Drill (FT / HR)	Redrill (HRS)	Redrill (FT / HR)						
04/15/94	2	DHD130A	112		5.33		21.01		04/15/94	40			26.2	52.9%
06/01/94	1	XL-24	185	112	2.83	2.42	25.80	46.28	06/03/94			48	43.2	11.1%

Total Drill Time = 8.16 Hours  
Average Penetration Rate = 22.67 Feet / Hour  
  
Total Redrill Time = 2.42 Hours  
Average Penetration Rate = 46.28 Feet / Hour

Verticality Information  
At Full Depth = 1.25° North X 0° East / West  
S-ARC North = 27.05"  
S-ARC South = 24.93"

Quality Coring: None.

Comments:

Secondary Pile #550  
Area "B"

Area "B"															
CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Redrill (FT / HR)	Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
10/19/93	1	XL-24	64		0.92		69.57			10/19/93		25		14.9	67.3%
11/06/93	1	DHD130A	52	64		3.25		19.69		11/30/93		38		12.1	212.9%
03/25/94	1	DHD130A	65	52		2.42		21.49		03/25/94	20	2.2		15.2	46.3%
04/22/94	1	DHD130A	63	65		1.00		65.00		04/22/94		27		14.7	83.5%
05/13/94	1	DHD130A	120	63	2.08	3.83	27.40	16.45		05/13/94		32		28.0	14.2%
06/28/94	1	XL-24	185	120	3.25	2.75	20.00	43.64		06/28/94			47	43.2	8.8%

Total Drill Time = 6.25 Hours  
Average Penetration Rate = 29.60 Feet / Hour  
Total Redrill Time = 13.25 Hours  
Average Penetration Rate = 27.47 Feet / Hour

Verticality Information  
At Full Depth = 0° North / South X 0° East / West  
S-ARC North = 24.93"  
S-ARC South = 26.76"

Quality Coring: None.  
Comments:

Primary Pile #551  
Area "B"

Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Redrill (FT / HR)	Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
04/13/94	2	DHD130A	123		5.34		23.03			04/13/94	40			28.7	39.3%
05/24/94	1	XL-24	185	123	2.92	2.75	21.23	44.73		05/26/94			48	43.2	11.1%

Total Drill Time = 8.26 Hours  
Average Penetration Rate = 22.40 Feet / Hour  
Total Redrill Time = 2.75 Hours  
Average Penetration Rate = 44.73 Feet / Hour

Verticality Information  
At Full Depth = 0° North / South X 0° East / West  
S-ARC North = 26.76"  
S-ARC South = 20.22"

Quality Coring: None.  
Comments:



Secondary Pile #552  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
09/17/93	1	DHD130A	65		1.33			48.87		10/13/94		18		15.2	18.6%
03/14/94	1	DHD130A	65	65		2.50		26.00		03/14/94	42			15.2	176.7%
05/16/94	2	DHD130A	110		2.00	2.92		22.50		05/17/94		31.5		25.7	22.6%
07/13/94	1	XL-24	185	110	2.27	4.26		33.04		07/14/94			47.5	43.2	10.0%

Total Drill Time = 5.60 Hours  
Average Penetration Rate = 33.04 Feet / Hour  
Total Redrill Time = 9.68 Hours  
Average Penetration Rate = 24.79 Feet / Hour

Verticality Information  
At Full Depth = 4.0° South X 3.0° West  
S-ARC North = 20.22°  
S-ARC South = 30.73°

Quality Coring: None.

Comments:

Primary Pile #553  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
04/07/94	2	DHD130A	103		3.67		28.07		04/08/94	164	2.8		24.1	583.5%
08/20/94	1	XL-24	185	103	3.67	2.92	22.34	35.27	06/20/94			48	43.2	11.1%

Total Drill Time = 7.34 Hours  
Average Penetration Rate = 25.20 Feet / Hour  
Total Redrill Time = 2.92 Hours  
Average Penetration Rate = 35.27 Feet / Hour

Verticality Information  
At Full Depth = 1.0° South X 2.0° West  
S-ARC North = 30.73°  
S-ARC South = 23.90°

Quality Coring: None.

Comments:

Secondary Pile #554  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
03/18/94	1	XL-24	62		1.58		39.24		03/18/94	25			14.5	72.7%
05/18/94	2	DHD130A	105	62	0.87	1.13	49.43	54.87	05/19/94		32		24.5	30.5%
07/11/94	1	DHD130A	185	105	3.83	3.75	20.89	28.00	07/12/94			48	43.2	11.1%

Total Drill Time = 6.28 Hours  
Average Penetration Rate = 29.46 Feet / Hour

Total Redrill Time = 4.88 Hours  
Average Penetration Rate = 34.22 Feet / Hour

Verticality Information  
At Full Depth = 0° North / South X 10° East  
S-ARC North = 23.90°  
S-ARC South = 22.71°

Quality Coring: None.

Comments:

Primary Pile #555  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time			Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
04/18/94	1	DHD130A	105		3.83		27.42			04/19/94	100	8		24.5	340.5%
05/05/94	1	DHD130A	105	105		2.42		43.39		05/05/94	35	6		24.5	67.2%
05/27/94	1	DHD130A	185	105	3.33	2.17	24.02	48.39		05/27/94			51.5	43.2	19.2%

Total Drill Time = 7.16 Hours  
Average Penetration Rate = 25.84 Feet / Hour

Total Redrill Time = 4.59 Hours  
Average Penetration Rate = 45.75 Feet / Hour

Verticality Information  
At Full Depth = 0.75° South X 0° East / West  
S-ARC North = 22.71°  
S-ARC South = 14.24°

Quality Coring: None.

Comments:

Secondary Pile #556  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION									
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Redrill (HRS)	Redrill (FT / HR)	Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak			
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)											
03/17/94	1	DHD130A	64		1.00		64.00				03/17/94	45			14.9	201.1%			
05/17/94	1	DHD130A	100	64	1.13	1.95	31.86				05/18/94			29.5	23.4	26.3%			
06/30/94	1	XL-24	185	100	2.75	3.33	30.91				07/01/94			47	43.2	8.8%			

Total Drill Time = 4.88 Hours  
Average Penetration Rate = 37.91 Feet / Hour

Total Redrill Time = 5.28 Hours  
Average Penetration Rate = 31.06 Feet / Hour

Verticality Information  
At Full Depth = 7.0° South X 7.0° West  
S-ARC North = 14.24"  
S-ARC South = 31.14"

Quality Coring: None.

Comments:

Primary Pile #557  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION									
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Redrill (HRS)	Redrill (FT / HR)	Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak			
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)											
04/27/94	1	DHD130A	94		3.34		28.14				04/28/94	55		9	22.0	191.6%			
06/08/94	1	XL-24	185	94	3.08	2.17	29.55				06/09/94			50	43.2	15.7%			

Total Drill Time = 6.42 Hours  
Average Penetration Rate = 28.82 Feet / Hour

Total Redrill Time = 2.17 Hours  
Average Penetration Rate = 43.32 Feet / Hour

Verticality Information  
At Full Depth = 3.5° South X 10° West  
S-ARC North = 31.14"  
S-ARC South = 20.14"

Quality Coring: None.

Comments:

Secondary Pile #558  
Area "B"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Theoretical Volume (CU.YD.)
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)	
03/21/94	1	DHD130A	65		1.25		52.00		15.2
05/10/94	2	DHD130A	95	65	1.36	1.02	22.06	63.73	22.2
05/25/94	2	DHD130A	185	95	8.09	1.33	11.12	71.43	43.2

Total Drill Time = 10.70 Hours  
Average Penetration Rate = 17.29 Feet / Hour

Total Redrill Time = 2.35 Hours  
Average Penetration Rate = 68.09 Feet / Hour

Verticality Information  
At Full Depth = 7.0° South X 3.75° West  
S-ARC North = 20.14°  
S-ARC South = 37.78°

Quality Coring: None.

Comments:

Primary Pile #559  
Area "B"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Theoretical Volume (CU.YD.)
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)	
04/21/94	1	DHD130A	95		2.53		37.55		22.2
06/28/94	1	XL-24	185	95	3.17	2.00	28.39	47.50	43.2

Total Drill Time = 5.70 Hours  
Average Penetration Rate = 32.46 Feet / Hour

Total Redrill Time = 2.00 Hours  
Average Penetration Rate = 47.50 Feet / Hour

Verticality Information  
At Full Depth = 2.0° North X 2.0° West  
S-ARC North = 37.78°  
S-ARC South = 19.33°

Quality Coring: None.

Comments:

Secondary Pile #560  
Area "B"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Drill (HRS)	Redrill (FT / HR)	Penetration Rate (FT / HR)	Overbreak
03/23/94	1	DHD130A	62		1.17			52.99	53.3%
06/03/94	2	DHD130A	100	62	1.92	1.67	37.13	19.79	15.6%
06/16/94	1	DHD130A	95	100		1.30	76.92		35.2%
07/18/94	1	XL-24	185	100	3.92	3.33	30.03	21.68	11.1%

Total Drill Time = 7.01 Hours  
Average Penetration Rate = 25.68 Feet / Hour  
  
Total Redrill Time = 6.30 Hours  
Average Penetration Rate = 41.59 Feet / Hour

Verticality Information  
At Full Depth = 0° North / South X 10° East  
S-ARC North = 19.33"  
S-ARC South = 19.91"

Quality Coring: None.

Comments:

Primary Pile #561  
Area "B"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Drill (HRS)	Redrill (FT / HR)	Penetration Rate (FT / HR)	Overbreak
04/15/94	2	DHD130A	104		4.00			26.00	35.5%
06/24/94	1	XL-24	185	104	3.25	2.00	52.00	24.92	8.8%

Total Drill Time = 7.25 Hours  
Average Penetration Rate = 25.52 Feet / Hour  
  
Total Redrill Time = 2.00 Hours  
Average Penetration Rate = 52.00 Feet / Hour

Verticality Information  
At Full Depth = 2.5° South X 0° East / West  
S-ARC North = 19.91"  
S-ARC South = 23.62"

Quality Coring: None.

Comments:

Secondary Pile #562  
Area "B"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage Drill (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate Drill (FT / HR)	Redrill (FT / HR)	Overbreak
03/22/94	1	DHD130A	63		1.75		36.00		35.9%
06/10/94	2	DHD130A	100	63	1.67	2.00	22.16	31.50	84.1%
07/13/94	1	XL-24	185	100	3.67	3.58	23.16	27.93	8.8%

Total Drill Time = 7.09 Hours  
Average Penetration Rate = 26.09 Feet / Hour

Total Redrill Time = 5.58 Hours  
Average Penetration Rate = 29.21 Feet / Hour

Verticality Information  
At Full Depth = 4.5" South X 2.5" East  
S-ARC North = 23.62"  
S-ARC South = 22.13"

Quality Coring: None.

Comments:

Primary Pile #563  
Area "B"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage Drill (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate Drill (FT / HR)	Redrill (FT / HR)	Overbreak
04/09/94	2	DHD130A	96		3.00		32.00		167.6%
06/21/94	1	XL-24	185	96	3.35	1.73	26.57	55.49	8.8%

Total Drill Time = 6.35 Hours  
Average Penetration Rate = 29.13 Feet / Hour

Total Redrill Time = 1.73 Hours  
Average Penetration Rate = 55.49 Feet / Hour

Verticality Information  
At Full Depth = 6.0" South X 6.5" West  
S-ARC North = 22.13"  
S-ARC South = 22.26"

Quality Coring: None.

Comments:

Secondary Pile #564  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
03/17/94	1	DHD130A	65		1.33		48.87		20			15.2	31.8%	
05/31/94	1	DHD130A	96	65	0.83	1.80	37.35	36.11		28		22.4	24.9%	
07/05/94	1	XL-24	185	96	2.58	2.92	34.50	32.88			47	43.2	8.8%	

Total Drill Time = 4.74 Hours  
Average Penetration Rate = 39.03 Feet / Hour  
  
Total Redrill Time = 4.72 Hours  
Average Penetration Rate = 34.11 Feet / Hour

Verticality Information  
At Full Depth = 7.75° South X 1.5° East  
S-ARC North = 22.28"  
S-ARC South = 21.41"

Quality Coring: None.  
Comments:

Primary Pile #565  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Grout (CU.YD.)	Concrete Date	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
03/29/94	1	DHD130A	97		2.67		36.33		92	03/29/94			22.7	306.2%	
06/23/94	1	XL-24	185	97	2.83	2.75	31.10	35.27		06/24/94		47	43.2	8.8%	

Total Drill Time = 5.50 Hours  
Average Penetration Rate = 33.64 Feet / Hour  
  
Total Redrill Time = 2.75 Hours  
Average Penetration Rate = 35.27 Feet / Hour

Verticality Information  
At Full Depth = 11° South X 2.0° West  
S-ARC North = 21.41"  
S-ARC South = 18.94"

Quality Coring: None.  
Comments:

Secondary Pile #566  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
03/21/94	1	DHD130A	65		1.25		52.00		03/21/94	18			15.2	18.6%
04/28/94	1	XL-24	185	65	8.17	1.00	14.69	65.00	04/28/94	80			43.2	85.2%
05/12/94	2	DHD130A	185	185		5.00		37.00	05/13/94			61	43.2	41.2%

Total Drill Time = 9.42 Hours  
Average Penetration Rate = 19.64 Feet / Hour  
  
Total Redrill Time = 6.00 Hours  
Average Penetration Rate = 41.67 Feet / Hour

Verticality Information  
At Full Depth = 15° South X 9.0° West  
S-ARC North = 18.94"  
S-ARC South = 38.13"

Quality Coring: None.

Comments:

Primary Pile #567  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
04/05/94	2	DHD130A	99		3.33		29.73		04/05/94	30	2.9		23.1	42.3%
06/15/94	1	XL-24	185	99	3.25	2.17	26.46	45.62	06/15/94			47	43.2	8.8%

Total Drill Time = 6.58 Hours  
Average Penetration Rate = 28.12 Feet / Hour  
  
Total Redrill Time = 2.17 Hours  
Average Penetration Rate = 45.62 Feet / Hour

Verticality Information  
At Full Depth = 4.0° South X 2.0° West  
S-ARC North = 38.13"  
S-ARC South = 24.72"

Quality Coring: None.

Comments:



Secondary Pile #568  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
03/16/94	1	DHD130A	64		1.33		48.12			03/16/94	23			14.9	53.9%
05/16/94	2	DHD130A	100	64	0.28		128.57	2.38		05/17/94		28		23.4	19.9%
07/26/94	2	DHD130A	185	100	7.58		11.21	1.67		07/27/94			47.5	43.2	10.0%

Total Drill Time = 9.19 Hours  
Average Penetration Rate = 20.13 Feet / Hour  
  
Total Redrill Time = 4.05 Hours  
Average Penetration Rate = 40.49 Feet / Hour

Vertically Information  
At Full Depth = 5.0' South X 2.5' East  
S-ARC North = 24.72"  
S-ARC South = 24.72"

Quality Coring: None.  
Comments:

Primary Pile #569  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
04/01/94	2	DHD130A	98		5.25		18.67		04/01/94	45			22.9	96.6%
05/31/94	2	DHD130A	185	98	5.33	98	16.32	5.58	05/31/94			50	43.2	15.7%

Total Drill Time = 10.58 Hours  
Average Penetration Rate = 17.49 Feet / Hour  
  
Total Redrill Time = 5.58 Hours  
Average Penetration Rate = 17.56 Feet / Hour

Vertically Information  
At Full Depth = 6.0' South X 7.0' East  
S-ARC North = 24.72"  
S-ARC South = 32.02"

Quality Coring: None.  
Comments:

Secondary Pile #570  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time			Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
12/06/94	1	DHD130A	94		2.67		35.21			12/06/93		72		22.0	228.0%
08/04/94	1	XL-24	185	94	2.92	3.07	31.16	30.62		08/05/94			49.5	43.2	14.6%

Total Drill Time = 5.59 Hours  
Average Penetration Rate = 33.09 Feet / Hour

Total Redrill Time = 3.07 Hours  
Average Penetration Rate = 30.62 Feet / Hour

Verticality Information  
At Full Depth = 2.0° South X 7.5° East  
S-ARC North = 32.02°  
S-ARC South = 27.82°

Quality Coring: None.

Comments:

Primary Pile #571  
Area "B"

Area D

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
04/12/94	2	DHD130A	96		5.00		19.20		04/12/94	35	1.0		22.4	60.6%	
06/27/94	1	XL-24	185	96	3.65	2.07	24.38	46.38	06/28/94			47	43.2	8.8%	

Total Drill Time = 8.65 Hours  
Average Penetration Rate = 21.39 Feet / Hour

Total Redrill Time = 2.07 Hours  
Average Penetration Rate = 46.38 Feet / Hour

Verticality Information  
At Full Depth = 0° North / South X 0° East / West  
S-ARC North = 27.82°  
S-ARC South = 39.10°

Quality Coring: None.

Comments:

Secondary Pile #572  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
12/14/93	2	DHD130A	90		3.08		29.22		12/18/93		61		21.0	190.2%
03/14/94	1	DHD130A	41	90		2.08		43.27	03/15/94	45			9.6	370.0%
05/10/94	1	XL-24	215	90	5.00	1.67	25.00	53.89	05/10/94			63	50.2	25.5%

Total Drill Time = 8.08 Hours  
Average Penetration Rate = 20.54 Feet / Hour  
  
Total Redrill Time = 3.75 Hours  
Average Penetration Rate = 48.00 Feet / Hour

Verticality Information  
At Full Depth = 12.0" North X 7.0" East  
S-ARC North = 39.10"  
S-ARC South = 14.71"

Quality Coring: None.

Comments: Drilled extra 30' because of shale strata

Primary Pile #573  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
04/06/94	2	DHD130A	98		3.42		28.65		04/06/93	40			22.9	74.8%	
06/22/94	1	DHD130A	185	98	3.00	2.17	29.00	45.16	06/23/94			48	43.2	11.1%	

Total Drill Time = 6.42 Hours  
Average Penetration Rate = 28.82 Feet / Hour  
  
Total Redrill Time = 2.17 Hours  
Average Penetration Rate = 45.16 Feet / Hour

Verticality Information  
At Full Depth = 8.0" North X 6.0" West  
S-ARC North = 14.71"  
S-ARC South = 0.39"

Quality Coring: None.

Comments:

Secondary Pile #574  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION									
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Redrill (FT)	Redrill (HRS)	Redrill (FT / HR)	Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak		
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)											
03/18/94	1	DHD130A	65		2.00		32.50					03/18/94	22			15.2	44.9%		
05/17/94	2	DHD130A	100	65	1.67	1.92	20.96	33.85				05/18/94		31		23.4	32.8%		
07/28/94	2	XL-24	185	100	3.42	3.67	24.85	27.25				04/29/94			50	43.2	15.7%		

Total Drill Time = 7.09 Hours  
Average Penetration Rate = 26.09 Feet / Hour

Total Redrill Time = 5.59 Hours  
Average Penetration Rate = 29.52 Feet / Hour

Verticality Information  
At Full Depth = 1.5" North X 9.0" East  
S-ARC North = 0.39"  
S-ARC South = 23.63"

Quality Coring: None.

Comments:

Primary Pile #575  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION									
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Redrill (FT)	Redrill (HRS)	Redrill (FT / HR)	Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak		
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)											
04/13/94	2	DHD130A	99		3.08		32.14					04/14/94	50			23.1	128.8%		
06/24/94	1	XL-24	185	99	2.75	2.17	31.27	45.62				06/27/94			48.5	43.2	12.3%		

Total Drill Time = 5.83 Hours  
Average Penetration Rate = 31.73 Feet / Hour

Total Redrill Time = 2.17 Hours  
Average Penetration Rate = 45.62 Feet / Hour

Verticality Information  
At Full Depth = 1.0" North X 0" East / West  
S-ARC North = 23.63"  
S-ARC South = 27.00"

Quality Coring: None.

Comments:

Secondary Pile #576  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION									
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Redrill		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak			
03/26/94	1	DHD130A	62		1.65				37.58		03/26/94	20			14.5	38.1%			
05/11/94	2	DHD130A	100	62	1.85			1.32	20.54		05/12/94	30		4.5	23.4	47.7%			
05/25/94	2	DHD130A	185	100	6.00			2.33	14.17		05/26/94				43.2	20.4%			

Total Drill Time = 9.50 Hours  
Average Penetration Rate = 19.47 Feet / Hour  
  
Total Redrill Time = 3.65 Hours  
Average Penetration Rate = 44.38 Feet / Hour

Verticality Information  
At Full Depth = 1.5" North X 4.0" East  
S-ARC North = 27.00"  
S-ARC South = 17.67"

Quality Coring: None.

Comments:

Primary Pile #577  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION									
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Redrill		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak			
04/08/94	2	DHD130A	87		2.42				35.95		04/08/94	52.5			20.3	158.4%			
07/08/94	1	XL-24	185	87	3.88			1.87	25.26		07/11/94			49.5	43.2	14.6%			

Total Drill Time = 6.30 Hours  
Average Penetration Rate = 29.37 Feet / Hour  
  
Total Redrill Time = 1.87 Hours  
Average Penetration Rate = 46.52 Feet / Hour

Verticality Information  
At Full Depth = 4.5" South X 4.25" East  
S-ARC North = 17.67"  
S-ARC South = 26.22"

Quality Coring: None.

Comments:

Secondary Pile #578  
Area "B"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate (FT / HR)	Drill (FT / HR)	Redrill (FT / HR)
03/16/94	1	DHD130A	65		1.67		38.92		
06/13/94	2	DHD130A	100	65	1.69	2.06	20.71		31.55
08/01/94	1	XL-24	185	100	3.23	3.27	26.32		30.58
			Concrete Date		GROUT (CU.YD.)		Non-Spec. Concrete (CU.YD.)		Spec. Concrete (CU.YD.)
			03/16/94		20				
			06/13/94				30		
			08/03/94						48
									15.2
									23.4
									43.2
									31.8%
									28.5%
									11.1%

Total Drill Time = 6.59 Hours  
Average Penetration Rate = 28.07 Feet / Hour

Total Redrill Time = 5.33 Hours  
Average Penetration Rate = 30.96 Feet / Hour

Vertically Information  
At Full Depth = 3.75" South X 9.75" East  
S-ARC North = 26.22"  
S-ARC South = 28.47"

Quality Coring: None.

Comments:

Primary Pile #579  
Area "B"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate (FT / HR)	Drill (FT / HR)	Redrill (FT / HR)
05/20/94	2	DHD130A	101		3.92		25.77		
06/30/94	1	XL-24	185	101	3.32	2.02	25.30		50.00
			Concrete Date		GROUT (CU.YD.)		Non-Spec. Concrete (CU.YD.)		Spec. Concrete (CU.YD.)
			05/24/94		100				
			07/01/94						50
									23.6
									43.2
									348.6%
									15.7%

Total Drill Time = 7.24 Hours  
Average Penetration Rate = 25.55 Feet / Hour

Total Redrill Time = 2.02 Hours  
Average Penetration Rate = 50.00 Feet / Hour

Vertically Information  
At Full Depth = 2.5" North X 4.5" West  
S-ARC North = 28.47"  
S-ARC South = 16.67"

Quality Coring: None.

Comments:

Secondary Pile #580  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION									
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Redrill (FT)	Redrill (HRS)	Redrill (FT / HR)	Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak		
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)											
10/19/93	1	XL-24	45		1.45		31.03					10/19/93		13		10.5	23.7%		
04/23/94	1	DHD130A	65	45	0.67	2.42	29.85	18.60				04/25/94	20	2.1		15.2	45.6%		
06/14/94	2	DHD130A	105	65	1.43	1.40	27.97	46.43				06/15/94		31		24.5	26.4%		
08/08/94	1	XL-24	185	105	3.42	3.42	23.39	30.70				08/09/94			48	43.2	11.1%		

Total Drill Time = 6.97 Hours  
Average Penetration Rate = 26.54 Feet / Hour  
  
Total Redrill Time = 7.24 Hours  
Average Penetration Rate = 29.70 Feet / Hour

Verticality Information  
At Full Depth = 1.75" South X 5.5" East  
S-ARC North = 16.67"  
S-ARC South = 21.76"

Quality Coring: None.

Comments:

Primary Pile #581  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION									
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Redrill (FT)	Redrill (HRS)	Redrill (FT / HR)	Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak		
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)											
06/02/94	2	DHD130A	103		4.75		21.68					06/02/94	45	6.0		24.1	112.0%		
07/06/94	1	XL-24	185	103	4.97	2.37	16.50	43.46				07/07/94			55	43.2	27.3%		

Total Drill Time = 9.72 Hours  
Average Penetration Rate = 19.03 Feet / Hour  
  
Total Redrill Time = 2.37 Hours  
Average Penetration Rate = 43.46 Feet / Hour

Verticality Information  
At Full Depth = 5.0" South X 6.0" East  
S-ARC North = 21.76"  
S-ARC South = 30.02"

Quality Coring: None.

Comments:

# Secondary Pile #582

## Area "B"

Area "B"															
CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
09/17/93	1	DHD130A	124		6.25		19.84			10/13/93		89		29.0	207.4%
10/22/93	2	240	51	124		2.25		55.11		12/10/93		65.5		11.9	450.0%
06/16/94	2	DHD130A	124			4.00		12.75		06/16/94		35		29.0	20.9%
08/12/94	1	XL-24	185	124	2.92	4.83	20.89	25.67		08/16/94			47.5	43.2	10.0%

Total Drill Time = 9.17 Hours  
Average Penetration Rate = 20.17 Feet / Hour

Total Redrill Time = 11.08 Hours  
Average Penetration Rate = 26.99 Feet / Hour

Verticality Information  
At Full Depth = 2.0" South X 1.5" East  
S-ARC North = 30.02"  
S-ARC South = 26.71"

Quality Coring: None.

Comments: Clam in hole approx. 54' deep. (09/17/93)  
12/10/93 Piles # 582 - 586 were connected, so when one pile was poured they both filled with concrete.

# Primary Pile #583

## Area "B"

CUT-OFF WALL EXCAVATION

CUT-OFF WALL CONSTRUCTION

Area "B"

Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
04/14/94	2	DHD130A	54		2.42		22.31		04/14/94		15.5		12.6	22.9%
06/09/94	2	DHD130A	105	54	2.49	2.43	20.48	22.22	06/09/94	30	2		24.5	30.5%
07/11/94	1	DHD130A	185	105	6.17	4.00	12.97	26.25	07/12/94			48.5	43.2	12.3%

Total Drill Time = 11.08 Hours  
Average Penetration Rate = 16.70 Feet / Hour

Total Redrill Time = 6.43 Hours  
Average Penetration Rate = 24.73 Feet / Hour

Verticality Information  
At Full Depth = 2.0" South X 0" East / West  
S-ARC North = 26.71"  
S-ARC South = 28.69"

Quality Coring: None.

Comments: Recovered clam (see above) on 04/16/94



Secondary Pile #584  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION									
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage Drill (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate Drill (FT / HR)	Redrill (FT / HR)	Concrete Date	GROUT (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak					
10/21/93	1	XL-24	45		1.42		31.69		10/21/93		16		10.5	52.3%					
03/18/94	1	DHD130A	53	45	0.68	3.48	11.76		04/05/94	20	3.5		12.4	73.5%					
03/28/94	1	DHD130A	58	53					04/20/94		15		13.5	19.0%					
04/14/94	2	DHD130A	54	58					04/27/94	20			12.6	33.8%					
04/26/94	1	DHD130A	64	58					06/20/94		42		14.9	43.9%					
06/17/94	2	DHD130A	125	64					08/11/94			47	29.2	8.8%					
08/10/94	1	XL-24	185	125									43.2						

Total Drill Time = 2.10 Hours  
Average Penetration Rate = 25.24 Feet / Hour  
  
Total Redrill Time = 3.48 Hours  
Average Penetration Rate = 12.93 Feet / Hour

Verticality Information  
At Full Depth = 0.5° South X 2.0° East  
S-ARC North = 28.69°  
S-ARC South = 23.80°

Quality Coring: None.

Comments:

Primary Pile #585  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION									
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage Drill (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate Drill (FT / HR)	Redrill (FT / HR)	Concrete Date	GROUT (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak					
04/12/94	2	DHD130A	58		3.33		17.42		04/20/94	5	15		13.5	47.7%					
06/13/94	2	XL-24	125	58	4.17	2.75	16.07	21.09	06/13/94	35	6		29.2	40.5%					
07/14/94	1	DHD130A	185	125	3.97	5.53	15.11	22.60	07/15/94			55	43.2	27.3%					

Total Drill Time = 11.47 Hours  
Average Penetration Rate = 16.13 Feet / Hour  
  
Total Redrill Time = 8.28 Hours  
Average Penetration Rate = 22.10 Feet / Hour

Verticality Information  
At Full Depth = 4.0° South X 2.5° East  
S-ARC North = 23.80°  
S-ARC South = 26.25°

Quality Coring: None.

Comments: 4/20/94 grout silo auger motor broke down after placing 5 cu. yds. of grout, pile filled with 'non-spec'.

Secondary Pile #586  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
11/29/94	2	DHD130A		50	1.67		29.94			12/10/93		40		11.7	242.6%
06/21/94	2	DHD130A		125	2.78	1.88	26.98		26.60	06/22/94		35		29.2	19.9%
07/27/94	2	DHD130A		185	3.77	6.10	15.92		20.49	07/28/94			46.5	43.2	7.6%

Total Drill Time = 8.22 Hours  
Average Penetration Rate = 22.51 Feet / Hour

Total Redrill Time = 7.98 Hours  
Average Penetration Rate = 21.93 Feet / Hour

Vertically Information  
At Full Depth = 1.5" South X 5.5" West  
S-ARC North = 26.25"  
S-ARC South = 27.36"

Quality Coring: None.

Comments:

Primary Pile #587  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
06/07/94	2	DHD130A	123		5.50		22.36		06/07/94	40	2		28.7	46.2%	
07/18/94	1	DHD130A	185	123	5.17	6.50	11.99	18.92	07/19/94			50.5	43.2	16.9%	

Total Drill Time = 10.67 Hours  
Average Penetration Rate = 17.34 Feet / Hour

Total Redrill Time = 6.50 Hours  
Average Penetration Rate = 18.92 Feet / Hour

Vertically Information  
At Full Depth = 1.0" South X 7.5" West  
S-ARC North = 27.36"  
S-ARC South = 24.61"

Quality Coring: None.

Comments:

Secondary Pile #588  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
03/15/94	1	DHD130A	63		3.00		21.00		03/15/94	30			14.7	103.9%	
06/29/94	2	DHD130A	125	63	3.27	2.15	18.96	29.30	06/29/94		40		29.2	37.0%	
08/18/94	1	DHD130A	185	125	4.27	2.40	14.05	52.08	08/22/94			47	43.2	8.8%	

Total Drill Time = 10.54 Hours  
Average Penetration Rate = 17.55 Feet / Hour  
  
Total Redrill Time = 4.55 Hours  
Average Penetration Rate = 41.32 Feet / Hour

Verticality Information  
At Full Depth = 1.0° South X 1.0° East  
S-ARC North = 24.61"  
S-ARC South = 36.18"

Quality Coring: None.

Comments:

Primary Pile #589  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment		Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
	Rig #	Excavation Method	Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
05/31/94	2	DHD130A	99		5.17		19.15			06/01/94	40			23.1	73.0%
08/01/94	1	XL-24	185	99	4.37	2.72	19.68	36.40		08/03/94			52	43.2	20.4%

Total Drill Time = 9.54 Hours  
Average Penetration Rate = 19.39 Feet / Hour  
  
Total Redrill Time = 2.72 Hours  
Average Penetration Rate = 36.40 Feet / Hour

Verticality Information  
At Full Depth = 6.5° North X 1.75° East  
S-ARC North = 36.18"  
S-ARC South = 17.59"

Quality Coring: None.

Comments:

Secondary Pile # 590  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment		Drill Footage		Pure Drill Time		Penetration Rate			Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
	Rig #	Excavation Method	Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
03/17/94	1	DHD130A	65		2.83		22.97			31		15.2	104.2%	
07/01/94	1	DHD130A	109	65	2.40	1.85	18.33	35.14		29		25.5	13.9%	
07/20/94	1	XL-24	185	109	3.65	4.18	20.82	26.08			49.5	43.2	14.6%	

Secondary Pile # 592  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment		Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
	Rig #	Excavation Method	Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
03/30/94	1	DHD130A	65			2.17		ERR	03/30/94	33			15.2	117.4%
06/23/94	2	DHD130A	100	65	1.92	1.92		18.23	06/23/94		32		23.4	37.0%
08/08/94	1	XL24	185	100	3.67	4.08		23.16	08/09/94			49	43.2	13.4%

Total Drill Time = 5.59 Hours  
Average Penetration Rate = 33.09 Feet / Hour

Total Redrill Time = 8.17 Hours  
Average Penetration Rate = 20.20 Feet / Hour

Vertically Information  
At Full Depth = 2.25' South X 6.75' East  
S--ARC North = 25.24  
S--ARC South = 18.09

Quality Coring: None.

Comments:

Primary Pile # 593  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
04/23/94	1	DHD130A	93		4.00		23.25		04/23/94	62				21.7	185.5%
07/29/94	2	XL-24	185	93	3.80	2.37	24.21	39.24	08/01/94			49	43.2	13.4%	

Total Drill Time = 7.80 Hours  
Average Penetration Rate = 23.72 Feet / Hour

Total Redrill Time = 2.37 Hours  
Average Penetration Rate = 39.24 Feet / Hour

Vertically Information  
At Full Depth = 6.5' South X 1" West  
S--ARC North = 22.57  
S--ARC South = 32.74

Quality Coring: None.

Comments:

Secondary Pile # 594  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
04/04/94	2	DHD130A	65		2.25		28.89			04/04/94	27.5			15.2	81.2%
06/13/94	2	DHD130A	100	65	1.03	1.59	33.98	40.88		06/14/94		28		23.4	19.9%
08/15/94	1	DHD130A	185	100	5.18	6.22	16.41	16.08		08/16/94			47.5	43.2	10.0%

Total Drill Time = 8.46 Hours  
Average Penetration Rate = 21.87 Feet / Hour

Total Redrill Time = 7.81 Hours  
Average Penetration Rate = 21.13 Feet / Hour

Verticality Information  
At Full Depth = 1.75" South X 1.5" East  
S-ARC North = 18.09  
S-ARC South = 25.08

Quality Coring: None.

Comments:

Primary Pile # 595  
Area "B"

CUT-OFF WALL EXCAVATION							CUT-OFF WALL CONSTRUCTION							
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
05/23/94	2	DHD130A	106		5.08		20.87		05/23/94	50	3		24.8	114.1%
07/26/94	2	XL-24	185	106	6.25	4.10	12.64	25.85	07/27/94			48	43.2	11.1%

Total Drill Time = 11.33 Hours  
Average Penetration Rate = 16.33 Feet / Hour

Total Redrill Time = 4.10 Hours  
Average Penetration Rate = 25.85 Feet / Hour

Verticality Information  
At Full Depth = 2.51" South X 3" West  
S-ARC North = 32.74  
S-ARC South = 29.72

Quality Coring: None.

Comments:

Secondary Pile # 596  
Area "B"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage Drill (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate Drill (FT / HR)	Redrill (FT / HR)	Overbreak
04/06/94	2	DHD130A	65		2.17		29.95		48.2%
06/15/94	2	DHD130A	105	65	1.11	1.31	36.04	49.62	26.4%
08/10/94	1	XL-24	185	105	4.10	3.98	19.51	26.38	8.8%

Total Drill Time = 7.38 Hours  
Average Penetration Rate = 25.07 Feet / Hour

Total Redrill Time = 5.29 Hours  
Average Penetration Rate = 32.14 Feet / Hour

Verticality Information  
At Full Depth = 1" North X 4.5" East  
S-ARC North = 25.08  
S-ARC South = 22.58

Quality Coring: None.  
Comments:

Primary Pile # 597  
Area "B"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage Drill (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate Drill (FT / HR)	Redrill (FT / HR)	Overbreak
06/09/94	2	DHD130A	105		3.58		29.33		177.3%
07/21/94	1	XL-24	185	105	3.47	3.53	23.05	29.75	15.7%

Total Drill Time = 7.05 Hours  
Average Penetration Rate = 26.24 Feet / Hour

Total Redrill Time = 3.53 Hours  
Average Penetration Rate = 29.75 Feet / Hour

Verticality Information  
At Full Depth = 1.75" South X 4" East  
S-ARC North = 29.72  
S-ARC South = 34.09

Quality Coring: None.  
Comments:

Secondary Pile # 598  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION									
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout		Non-Spec. Concrete		Spec. Concrete		Theoretical Volume		Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)		(CU.YD.)	(CU.YD.)	(CU.YD.)	(CU.YD.)	(CU.YD.)	(CU.YD.)	(CU.YD.)	(CU.YD.)		
03/30/94	1	DHD130A	63		2.00		31.50		03/30/94	23		3				14.7		76.7%	
06/17/94	2	DHD130A	105	63	1.33	2.25	31.56	28.00	06/20/94			34				24.5		38.7%	
08/04/94	1	DHD130A	185	105	6.83	5.00	11.71	21.00	08/04/94					47		43.2		8.8%	

Total Drill Time = 10.16 Hours  
Average Penetration Rate = 18.21 Feet / Hour

Total Redrill Time = 7.25 Hours  
Average Penetration Rate = 23.17 Feet / Hour

Verticality Information  
At Full Depth = 4" North X 5.5" East  
S-ARC North = 22.58  
S-ARC South = 15.51

Quality Coring: None.

Comments:

Primary Pile # 599  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION									
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout		Non-Spec. Concrete		Spec. Concrete		Theoretical Volume		Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)		(CU.YD.)	(CU.YD.)	(CU.YD.)	(CU.YD.)	(CU.YD.)	(CU.YD.)	(CU.YD.)	(CU.YD.)		
06/03/94	2	DHD130A	104		3.17		32.81		06/03/94			9				24.3		163.5%	
07/06/94	1	XL-24	185	104	3.88	2.62	20.88	39.69	07/06/94	55				48		43.2		11.1%	

Total Drill Time = 7.05 Hours  
Average Penetration Rate = 26.24 Feet / Hour

Total Redrill Time = 2.62 Hours  
Average Penetration Rate = 39.69 Feet / Hour

Verticality Information  
At Full Depth = 2" South X 0" E/W  
S-ARC North = 34.09  
S-ARC South = 19.54

Quality Coring: None.

Comments:



Secondary Pile #600  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
03/25/94	1	DHD130A		58		2.08		27.88		03/26/94	20			13.5	47.7%
06/22/94	2	DHD130A		105	58	2.03	1.55	23.15	37.42	06/22/94		30.5		24.5	24.4%
08/17/94	1	DHD130A		185	105	6.60	6.48	12.12	16.20	08/18/94			47	43.2	8.8%

Total Drill Time = 10.71 Hours  
Average Penetration Rate = 17.27 Feet / Hour  
  
Total Redrill Time = 8.03 Hours  
Average Penetration Rate = 20.30 Feet / Hour

Verticality Information  
At Full Depth = 6.5" South X 1.5" East  
S-ARC North = 19.54"  
S-ARC South = 21.32"

Quality Coring: None.

Comments:

Primary Pile #601  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time			Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
05/20/94	2	DHD130A	105		6.25		16.80			05/20/94	65	3.0		24.5	177.3%
06/29/94	2	XL-24	185	105	3.58	2.50	22.35	42.00		06/30/94			48	43.2	11.1%

Total Drill Time = 9.83 Hours  
Average Penetration Rate = 18.82 Feet / Hour  
  
Total Redrill Time = 2.50 Hours  
Average Penetration Rate = 42.00 Feet / Hour

Verticality Information  
At Full Depth = 10" South X 0" East / West  
S-ARC North = 21.32"  
S-ARC South = 33.70"

Quality Coring: None.

Comments:

Secondary Pile #602  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
03/22/94	1	DHD130A	64		2.50		25.60		03/23/94	20			14.9	33.8%
06/27/94	2	DHD130A	105	64	1.97	1.70	20.81	37.65	06/27/94		30		24.5	22.4%
08/23/94	1	DHD130A	185	105	5.33	6.08	15.01	17.27	08/25/94			47	43.2	8.8%

Secondary Pile #604  
Area "B"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage Drill (FT)	Redrill (FT)	Pure Drill Time Drill (HRS)	Redrill (HRS)	Penetration Rate Drill (FT / HR)	Redrill (FT / HR)	Overbreak
03/21/94	1	DHD130A	62		2.75		22.55		45.0%
06/23/94	2	DHD130A	100	62	1.37	1.97	27.74	31.47	15.6%
07/30/94	2	XL-24	185	100	4.53	3.42	18.76	29.24	15.7%

Total Drill Time = 8.65 Hours  
Average Penetration Rate = 21.39 Feet / Hour

Total Redrill Time = 5.39 Hours  
Average Penetration Rate = 30.06 Feet / Hour

Vertically Information  
At Full Depth = 1.0' North X 6.0' West  
S-ARC North = 28.86"  
S-ARC South = 26.87"

Quality Coring: None.

Comments:

Primary Pile #605  
Area "B"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage Drill (FT)	Redrill (FT)	Pure Drill Time Drill (HRS)	Redrill (HRS)	Penetration Rate Drill (FT / HR)	Redrill (FT / HR)	Overbreak
04/25/94	1	DHD130A	95		3.67		25.89		341.8%
07/15/94	1	XL-24	185	95	5.00	2.83	18.00	33.57	13.4%

Total Drill Time = 8.67 Hours  
Average Penetration Rate = 21.34 Feet / Hour

Total Redrill Time = 2.83 Hours  
Average Penetration Rate = 33.57 Feet / Hour

Vertically Information  
At Full Depth = 1.5' North X 1.5' West  
S-ARC North = 26.87"  
S-ARC South = 15.05"

Quality Coring: None.

Comments:

Secondary Pile #606  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
03/15/94	1	DHD130A	65		2.67		24.34		03/15/94	47			15.2	209.6%	
06/09/94	2	DHD130A	100	65	1.12	1.88	31.25	34.57	06/10/94		29		23.4	24.2%	
08/02/94	1	XL-24	185	100	5.25	3.50	16.19	28.57	08/03/94			47.5	43.2	10.0%	

Total Drill Time = 9.04 Hours  
Average Penetration Rate = 20.46 Feet / Hour

Total Redrill Time = 5.38 Hours  
Average Penetration Rate = 30.67 Feet / Hour

Vertically Information  
At Full Depth = 5.0' South X 2.0' East  
S-ARC North = 15.05"  
S-ARC South = 22.97"

Quality Coring: None.

Comments: Connected with pile 620

Primary Pile #607  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION						
Drilling Date	Equipment		Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak		
	Rig #	Excavation Method	Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)								
04/02/94	2	DHD130A	97		3.58		27.09		04/02/94	49			22.7	116.3%		
07/19/94	1	XL-24	185	97	3.33	2.17	26.43	44.70	07/20/94			50.5	43.2	16.9%		

Total Drill Time = 6.91 Hours  
Average Penetration Rate = 26.77 Feet / Hour

Total Redrill Time = 2.17 Hours  
Average Penetration Rate = 44.70 Feet / Hour

Vertically Information  
At Full Depth = 7.5' South X 3.25' East  
S-ARC North = 22.97"  
S-ARC South = 32.02"

Quality Coring: None.

Comments:

Secondary Pile #608  
Area "B"

Area D

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time			Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
11/01/93	2	DHD130A	102		5.17		19.73			11/02/93		123		23.8	416.4%
07/27/94	2	DHD130A	185	102	5.77	5.40	14.38	18.89		07/28/94			48	43.2	11.1%

Total Drill Time = 10.94 Hours  
Average Penetration Rate = 16.91 Feet / Hour  
  
Total Redrill Time = 5.40 Hours  
Average Penetration Rate = 18.89 Feet / Hour

Verticality Information  
At Full Depth = 3.5" South X 3.75" East  
S--ARC North = 32.02"  
S--ARC South = 20.96"

Quality Coring: None.

Comments:

Primary Pile #609  
Area "B"

Area B

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
04/23/94	1	DHD130A	95		4.42		21.49		04/23/94	32	2.0		22.2	53.3%
07/21/94	1	XL-24	185	95	5.33	1.17	16.89	81.20	07/22/94			51	43.2	18.1%

Total Drill Time = 9.75 Hours  
Average Penetration Rate = 18.97 Feet / Hour  
  
Total Redrill Time = 1.17 Hours  
Average Penetration Rate = 81.20 Feet / Hour

Verticality Information  
At Full Depth = 7.0" South X 7.5" East  
S--ARC North = 20.96"  
S--ARC South = 33.75"

Quality Coring: None.

Comments:

Secondary Pile #610  
Area "B"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Pig #	Excavation Method	Drill Footage Drill (FT)	Redrill (FT)	Pure Drill Time Drill (HRS)	Redrill (HRS)	Penetration Rate Drill (FT / HR)	Redrill (FT / HR)	
10/19/93	1	XL-24	185		9.00		20.56		
11/30/93	1	XL-24	67						
12/03/93	1	XL-24	130						
Total Drill Time = 9.00 Hours									
Average Penetration Rate = 20.56 Feet / Hour									
Total Redrill Time = None									
Average Penetration Rate =									
Verticality Information									
At Full Depth = 0° North / South X 0° East / West									
S-ARC North = 33.75°									
S-ARC South = No Overlap at Full Depth, Overlap Achieved with Conforming Pile.									
Quality Coring: None.									

Total Drill Time = 9.00 Hours  
Average Penetration Rate = 20.56 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information

At Full Depth = 0° North / South X 0° East / West  
S-ARC North = 33.75°  
S-ARC South =

No Overlap at Full Depth, Overlap Achieved with Conforming Pile.

Quality Coring: None.

Comments: 11/30/93 set up on wrong pile and continued on 12-3-93 until mistake was discovered  
No redrill payment allowed.  
No payment for additional 58 cy of concrete.

Primary Pile #611  
Area "B"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Pig #	Excavation Method	Drill Footage Drill (FT)	Redrill (FT)	Pure Drill Time Drill (HRS)	Redrill (HRS)	Penetration Rate Drill (FT / HR)	Redrill (FT / HR)	
01/27/94	2	XL-24	185		6.50		28.46		
Total Drill Time = 6.50 Hours									
Average Penetration Rate = 28.46 Feet / Hour									
Total Redrill Time = None									
Average Penetration Rate =									
Verticality Information									
At Full Depth = 11° South X 7.0° West									
S-ARC North = No Overlap at Full Depth, Overlap Achieved with Conforming Pile.									
S-ARC South = 35.59°									
Quality Coring: None.									
Comments:									

Total Drill Time = 6.50 Hours  
Average Penetration Rate = 28.46 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information

At Full Depth = 11° South X 7.0° West  
S-ARC North = No Overlap at Full Depth, Overlap Achieved with Conforming Pile.  
S-ARC South = 35.59°

Quality Coring: None.

Comments:

Secondary Pile #612  
Area "B"

CUT-OFF WALL EXCAVATION							CUT-OFF WALL CONSTRUCTION							
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
09/17/93	1	DHD130A	185		15.08		12.27		09/18/93		146		43.2	238.0%
10/20/93	1	XL-24	82		82	3.08		26.62	10/20/93		19		19.1	-0.8%
12/09/93	2	DHD130A	80		80	3.58		22.35	12/13/93		45.5		18.7	143.6%
01/22/94	2	DHD130A	185		185	11.92		15.52	01/24/94			53	43.2	22.7%

Total Drill Time = 15.08 Hours  
Average Penetration Rate = 12.27 Feet / Hour

Total Redrill Time = 18.58 Hours  
Average Penetration Rate = 18.68 Feet / Hour

Vertically Information  
At Full Depth = 2.5' South X 0' East / West  
S-ARC North = 35.59"  
S-ARC South = 33.07"

Quality Coring: None.

Comments: Hole collapsed to 80' after drilling to 185' initially; cavities in the lower part of hole.

Primary Pile #613  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
01/31/94	2	DHD130A	185		9.08		20.37		02/01/94			47	43.2	8.8%

Total Drill Time = 9.08 Hours  
Average Penetration Rate = 20.37 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Vertically Information  
At Full Depth = 2.5' North X 2.5' East  
S-ARC North = 33.07"  
S-ARC South = 22.08"

Quality Coring: None.

Comments:

Secondary Pile #614  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
09/25/93	1	DHD130A	117		9.00		13.00		09/25/93		110		27.3	302.6%
01/13/94	2	DHD130A	185	117	7.17	8.58	9.48	13.64	01/14/94			53.5	43.2	23.8%

Total Drill Time = 16.17 Hours  
Average Penetration Rate = 11.44 Feet / Hour  
  
Total Redrill Time = 8.58 Hours  
Average Penetration Rate = 13.64 Feet / Hour

Verticality Information  
At Full Depth = 0.5° South X 0.75° East  
S-ARC North = 22.08"  
S-ARC South = 28.53"

Quality Coring: None.

Comments: Encountered clay to approx. 90', then went into rock

Primary Pile #615  
Area "B"

CUT-OFF WALL EXCAVATION														CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment		Drill Footage			Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak			
	Rig #	Excavation Method	Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)										
12/15/93	2	XL-24	185		8.17		22.64			12/17/93			93	43.2	115.3%			

Total Drill Time = 8.17 Hours  
Average Penetration Rate = 22.64 Feet / Hour  
  
Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 0.79° North X 0° East / West  
S-ARC North = 28.53"  
S-ARC South = 15.87"

Quality Coring: None.

Comments: Hole collapsed to 155', had to clean, probable reason for extra concrete.



Secondary Pile #616  
Area "B"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate (FT / HR)	Redrill (FT / HR)	Concrete Date
10/29/93	2	DHD130A	110		5.92		18.58		10/29/93
01/25/94	2	DHD130A	185	110	5.58	6.58	13.44	16.72	01/26/94

Total Drill Time = 11.50 Hours  
Average Penetration Rate = 16.09 Feet / Hour  
Total Redrill Time = 6.58 Hours  
Average Penetration Rate = 16.72 Feet / Hour

Verticality Information  
At Full Depth = 4.8" South X 6.8" West  
S-ARC North = 15.87"  
S-ARC South = 30.56"

Quality Coring: None.  
Comments:

Primary Pile #617  
Area "B"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate (FT / HR)	Redrill (FT / HR)	Concrete Date
11/08/93	1	DHD130A	95		4.83		19.67		11/08/93
01/20/94	2	XL-24	186	95	4.25	2.25	21.41	42.22	01/20/94

Total Drill Time = 9.08 Hours  
Average Penetration Rate = 20.48 Feet / Hour  
Total Redrill Time = 2.25 Hours  
Average Penetration Rate = 42.22 Feet / Hour

Verticality Information  
At Full Depth = 1.0" South X 0.5" West  
S-ARC North = 30.56"  
S-ARC South = 18.62"

Quality Coring: None.  
Comments:

CUT-OFF WALL EXCAVATION				CUT-OFF WALL CONSTRUCTION									
Drilling Date	Equipment Rig #	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
		Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
10/30/93	87	DHD130A	87	4.50		19.33		11/01/93		45		20.3	121.5%
06/15/94	110	DHD130A	110	1.22	4.28	18.85	20.33	06/16/94		31		25.7	20.7%
08/09/94	185	XL-24	185	3.67	3.92	20.44	28.06	08/10/94			47.5	43.2	10.0%

**Vertically Information**

At Full Depth =	5.5" South X 6.0" West
S-ARC North =	18.62"
S-ARC South =	37.84"

Primary Pile #619  
Area "B"

Area D

CUT -OFF WALL EXCAVATION										CUT -OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non - Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
04/27/94	1	DHD130A	109		4.78		22.80		04/28/94	30	6		25.5	41.4%	
06/29/94	2	XL - 24	185	109	3.85	2.57	19.74	42.41	07/01/94			50.5	43.2	16.9%	

Verticality Information

At Full Depth =	3.5" North X 7.25" West
S-ARC North =	37.84"
S-ARC South =	11.60"

Comments:

Secondary Pile #620  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
11/04/93	1	240	63		2.50		25.20		11/04/93	37.5			14.7	154.9%	
03/15/94	1	DHD30	65	63	0.02	3.33	100.00	18.92	03/15/94	25			15.2	64.7%	
06/13/94	2	DHD30	110	65	2.37	1.92	18.99	33.85	06/14/94		30		25.7	16.8%	
08/15/94	1	DHD30	185	110	5.88	6.78	12.76	16.22	08/18/94			47	43.2	8.8%	

Secondary Pile #622  
Area "B"

CUT - OFF WALL EXCAVATION										CUT - OFF WALL CONSTRUCTION						
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)								
03/17/94	1	DHD30	65		2.33			27.90		03/17/94	20			15.2	31.8%	
06/16/94	2	DHD30	110	65	2.93		1.74	15.36	37.36	06/17/94		28		25.7	9.0%	
08/11/94	1	DHD30	185	110	5.50		4.42	13.64	24.89	08/12/94			47	43.2	8.8%	

Total Drill Time = 10.76 Hours  
Average Penetration Rate = 17.19 Feet / Hour  
  
Total Redrill Time = 6.16 Hours  
Average Penetration Rate = 28.41 Feet / Hour

Verticality Information  
At Full Depth = 4.0" South X 5.25" East  
S-ARC North = 20.39"  
S-ARC South = 27.45"

Quality Coring: None.

Comments:

Primary Pile #623  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION						
Drilling Date	Equipment		Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
	Rig #	Excavation Method	Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)								
05/06/94	1	DHD30	107		7.83			13.67		05/06/94	35	5.5		25.0	62.1%	
07/13/94	1	XL-24	185	107	4.08		3.08	19.12	34.74	07/13/94			48	43.2	11.1%	

Total Drill Time = 11.91 Hours  
Average Penetration Rate = 15.53 Feet / Hour  
  
Total Redrill Time = 3.08 Hours  
Average Penetration Rate = 34.74 Feet / Hour

Verticality Information  
At Full Depth = 3.5" South X 5.75" East  
S-ARC North = 27.45"  
S-ARC South = 28.13"

Quality Coring: None.

Comments:

Secondary Pile #624  
Area "B"

CUT-OFF WALL EXCAVATION							CUT-OFF WALL CONSTRUCTION							
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
03/19/94	1	DHD30	64		2.75		23.27		03/19/94	23			14.9	53.9%
06/21/94	2	DHD30	110	64	3.78	1.55	12.17	41.29	06/21/94		32		25.7	24.6%
08/22/94	1	DHD30	185	110	4.95	6.30	15.15	17.46	08/23/94			47	43.2	8.8%

Total Drill Time = 11.48 Hours  
Average Penetration Rate = 16.11 Feet / Hour  
  
Total Redrill Time = 7.85 Hours  
Average Penetration Rate = 22.17 Feet / Hour

Verticality Information  
At Full Depth = 2.5" South X 5.0" East  
S--ARC North = 28.13"  
S--ARC South = 32.99"

Quality Coring: None.

Comments:

Primary Pile #625  
Area "B"

CUT-OFF WALL EXCAVATION							CUT-OFF WALL CONSTRUCTION							
Drilling Date	Equipment		Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
	Rig #	Excavation Method	Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
05/19/94	2	DHD30	105		7.58		13.85		05/20/94	30	3.9		24.5	38.3%
07/15/94	1	XL-24	185	105	4.08	3.25	19.61	32.31	07/18/94			48	43.2	11.1%

Total Drill Time = 11.66 Hours  
Average Penetration Rate = 15.87 Feet / Hour  
  
Total Redrill Time = 3.25 Hours  
Average Penetration Rate = 32.31 Feet / Hour

Verticality Information  
At Full Depth = 2.5" North X 2.0" East  
S--ARC North = 32.99"  
S--ARC South = 26.05"

Quality Coring: None.

Comments:

Secondary Pile #626  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
03/23/94	1	DHD30	63		2.33		27.04		03/23/94	20			14.7	35.9%
06/22/94	2	DHD30	105	63	1.67	2.00	25.15	31.50	06/23/94		32		24.5	30.5%
08/24/94	1	DHD30	185	105	4.17	4.75	19.18	22.11	08/25/94			43.5	43.2	0.7%

Total Drill Time = 8.17 Hours  
Average Penetration Rate = 22.64 Feet / Hour

Total Redrill Time = 6.75 Hours  
Average Penetration Rate = 24.89 Feet / Hour

Verticality Information  
At Full Depth = 2.0° North X 2.0° East  
S-ARC North = 26.05"  
S-ARC South = 34.31"

Quality Coring: None.  
Comments:

Primary Pile #627  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
04/25/94	1	DHD30	95		4.25		22.35		04/25/94	40	8		22.2	116.4%	
07/19/94	1	XL-24	185	95	5.00	2.67	18.00	35.58	07/20/94			48	43.2	11.1%	

Total Drill Time = 9.25 Hours  
Average Penetration Rate = 20.00 Feet / Hour

Total Redrill Time = 2.67 Hours  
Average Penetration Rate = 35.58 Feet / Hour

Verticality Information  
At Full Depth = 8.0° North X 0° East / West  
S-ARC North = 34.31"  
S-ARC South = 11.26°

Quality Coring: None.  
Comments:

Secondary Pile #628  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate (FT / HR)	Drill (FT / HR)	Redrill (FT / HR)	Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
03/21/94	1	DHD30	64		2.17			29.49		03/22/94	20			14.9	33.8%
06/30/94	2	DHD30	109	64	5.75	0.67	7.83		95.52	07/01/94		28.5		25.5	12.0%
08/09/94	1	XL-24	185	109	4.78	4.05	15.90		26.91	09/09/94			48.5	43.2	12.3%

Total Drill Time = 12.70 Hours  
Average Penetration Rate = 14.57 Feet / Hour

Total Redrill Time = 4.72 Hours  
Average Penetration Rate = 36.65 Feet / Hour

Verticality Information  
At Full Depth = 0° North / South X 3.0° West  
S-ARC North = 11.26°  
S-ARC South = 29.87°

Quality Coring: None.  
Comments:

Primary Pile #629  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate (FT / HR)	Drill (FT / HR)	Redrill (FT / HR)	Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
03/31/94	1	DHD30	95		5.08			18.70		04/01/94	47	2		22.2	120.9%
07/22/94	1	XL-24	185	95	4.50	3.83	20.00		24.80	07/25/94			49	43.2	13.4%

Total Drill Time = 9.58 Hours  
Average Penetration Rate = 19.31 Feet / Hour

Total Redrill Time = 3.83 Hours  
Average Penetration Rate = 24.80 Feet / Hour

Verticality Information  
At Full Depth = 2.5° North X 0° East / West  
S-ARC North = 29.87°  
S-ARC South = 14.22°

Quality Coring: None.  
Comments:

Secondary Pile #630  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION						
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)								
03/18/94	1	DHD130A	64		2.08		30.77			03/18/94	28			14.9	87.4%	
06/24/94	2	DHD130A	110	64	2.48	1.60	18.55	40.00		06/24/94		37.5		25.7	46.0%	
08/17/94	1	DHD130A	185	110	6.83	6.42	10.98	17.13		08/18/94			47	43.2	8.8%	

Total Drill Time = 11.39 Hours  
Average Penetration Rate = 16.24 Feet / Hour  
  
Total Redrill Time = 8.02 Hours  
Average Penetration Rate = 21.70 Feet / Hour

Verticality Information  
At Full Depth = 3.5" South X 8.0" East  
S-ARC North = 14.22"  
S-ARC South = 20.93"

Quality Coring: None.

Comments:

Primary Pile #631  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION						
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)								
04/22/94	1	DHD130A	80		4.00		20.00			04/22/94	32			18.7	71.3%	
06/08/94	2	DHD130A	110	80	7.62	1.88	3.94	42.55		06/08/94	50	2.0		25.7	102.4%	
08/02/94	1	XL-24	185	110	4.83	3.25	15.53	33.85		08/04/94			51	43.2	18.1%	

Total Drill Time = 16.45 Hours  
Average Penetration Rate = 11.25 Feet / Hour  
  
Total Redrill Time = 5.13 Hours  
Average Penetration Rate = 37.04 Feet / Hour

Verticality Information  
At Full Depth = 5.0" South X 19" East  
S-ARC North = 20.93"  
S-ARC South = 26.67"

Quality Coring: None.

Comments: Connected with piles 609, 621 & 631; Hole collapsed to 60'.



# Secondary Pile #632

## Area "B"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate (FT / HR)	Drill (FT / HR)	Overbreak
03/16/94	1	DHD130A	65		2.08		31.25		387.5%
05/23/94	2	DHD130A	80	65	1.95	1.88	7.69	34.57	39.2%
06/27/94	2	DHD130A	110	80	0.85	1.48	35.29	54.05	24.6%
08/12/94	1	XL-24	185	110	3.92	4.42	19.13	24.89	8.8%

Total Drill Time = 8.80 Hours  
Average Penetration Rate = 21.02 Feet / Hour  
Total Redrill Time = 7.78 Hours  
Average Penetration Rate = 32.78 Feet / Hour

Verticality Information  
At Full Depth = 2.0° South X 7.25° East  
S-ARC North = 26.67°  
S-ARC South = 20.93°

Quality Coring: None.

Comments: cavities 45-65'

# Primary Pile #633

## Area "B"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate (FT / HR)	Drill (FT / HR)	Overbreak
03/30/94	1	DHD130A	74		3.25		22.77		56.8%
06/01/94	2	DHD130A	110	74	4.12	1.22	8.74	60.66	28.5%
07/20/94	1	XL-24	185	110	3.83	2.58	19.58	42.64	12.3%

Total Drill Time = 11.20 Hours  
Average Penetration Rate = 16.52 Feet / Hour  
Total Redrill Time = 3.80 Hours  
Average Penetration Rate = 48.42 Feet / Hour

Verticality Information  
At Full Depth = 2.0° North X 12° West  
S-ARC North = 20.93°  
S-ARC South = 15.72°

Quality Coring: None.

Comments: Cavity 66 to 94'

Secondary Pile #634  
Area "B"

Area 'B'

CUT-OFF WALL EXCAVATION							CUT-OFF WALL CONSTRUCTION							
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
03/14/94	1	DHD130A	42		1.58		26.58		03/14/94	76			9.8	674.9%
03/19/94	1	DHD130A	64	42	0.90	1.33	24.44	31.58	03/19/94	22	8		14.9	100.7%
05/06/94	1	DHD130A	85	64	0.95	2.38	22.11	26.89	05/06/94	30	8.0		19.8	91.4%
06/29/94	2	DHD130A	110	85	1.58	1.58	15.82	53.80	06/29/94		31		25.7	20.7%
08/22/94	1	DHD130A	185	110	4.25	4.67	17.65	23.55	08/23/94			47	43.2	8.8%

Total Drill Time = 9.26 Hours  
Average Penetration Rate = 19.98 Feet / Hour  
Total Redrill Time = 9.96 Hours  
Average Penetration Rate = 30.22 Feet / Hour

Verticality Information  
At Full Depth = 1.5" South X 1.0" East  
S-ARC North = 15.72"  
S-ARC South = 20.70"

Quality Coring: None.

Comments: Connection with ditch during grouting, approx. 15' away.

Primary Pile #635  
Area "B"

CUT-OFF WALL EXCAVATION

CUT-OFF WALL CONSTRUCTION

Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
03/24/94	1	DHD130A	96		4.92		19.51		03/24/94	25			22.4	11.5%
08/05/94	1	XL-24	185	96	3.95	2.88	22.53	33.33	08/08/94			51	43.2	18.1%

Total Drill Time = 8.87 Hours  
Average Penetration Rate = 20.86 Feet / Hour  
Total Redrill Time = 2.88 Hours  
Average Penetration Rate = 33.33 Feet / Hour

Verticality Information  
At Full Depth = 4.5" South X 8.0" East  
S-ARC North = 20.70"  
S-ARC South = 29.59"

Quality Coring: None.

Comments:

# Secondary Pile #636

Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
10/21/93	1	XL-24	64		8.75		7.31			10/22/93		36.5		14.9	144.2%
12/10/93	2	DHD130A	185	64		7.50	8.53			12/13/93		64		43.2	48.1%
07/06/94	1	DHD130A	185	185		10.08	18.35			07/07/94			55	43.2	27.3%

Secondary Pile #638  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
10/16/94	1	XL-24	185		7.88		23.48			10/16/93			62	43.2	43.5%

Secondary Pile #640  
Area "C"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Pig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Theoretical Volume (CU.YD.)
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)	
10/11/93	1	DHD130A	185		16.58		11.16		43.2
11/13/93	1	DHD130A	185	185		12.25		15.10	43.2

Total Drill Time = 16.58 Hours  
Average Penetration Rate = 11.16 Feet / Hour

Total Redrill Time = 12.25 Hours  
Average Penetration Rate = 15.10 Feet / Hour

Verticality Information  
At Full Depth = 1.0° North X 2.75° East  
S-ARC North = 26.58"  
S-ARC South = 28.48"

Quality Coring: None.

Comments: 10/12/93 drilled to 185' down staged to 100'; caved in to 128'.

Primary Pile #641  
Area "C"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Pig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Theoretical Volume (CU.YD.)
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)	
11/19/93	1	XL-24	185		6.92		26.73		48.5

Total Drill Time = 6.92 Hours  
Average Penetration Rate = 26.73 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate = None

Verticality Information  
At Full Depth = 2.25° North X 3.0° East  
S-ARC North = 28.48"  
S-ARC South = 23.33"

Quality Coring: None.

Comments: Cavity 40 - 46'.

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Non-Spec. Concrete (CU.YD.)	Grout (CU.YD.)	Spec. Concrete Volume (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
10/06/93	1	DHD130A	185		15.66		11.81			10/07/93		78	43.2	80.6%

Total Redrill Time =  
Average Penetration Rate =  
None

**Quality Coring: None.**

Primary Pile #643  
Area "C"

CUT-OFF WALL EXCAVATION							CUT-OFF WALL CONSTRUCTION						
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Non-Spec. Concrete (CU.YD.)	Spec. Concrete Volume (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)					
11/04/93	1	XL-24	185		6.46			28.64	11/05/93		52	43.2	20.4%

Total Redrill Time =  
Average Penetration Rate =  
None

**Quality Coring: None.**

**Comments:**

Secondary Pile #644  
Area "C"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
10/04/93	1	DHD130A	185		13.67		13.53			10/04/93			57	43.2	31.9%

Total Drill Time = 13.67 Hours  
Average Penetration Rate = 13.53 Feet / Hour

Total Redrill Time = None

Average Penetration Rate =

Verticality Information  
At Full Depth = 1.0° North X 0.25° West  
S-ARC North = 29.83°  
S-ARC South = 34.14°

Quality Coring: None.

Comments:

Primary Pile #645  
Area "C"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
11/01/93	2	XL-24	185		7.09			26.09		11/01/93			49	43.2	13.4%

Total Drill Time = 7.09 Hours  
Average Penetration Rate = 26.09 Feet / Hour

Total Redrill Time = None

Average Penetration Rate =

Verticality Information  
At Full Depth = 6.75° North X 0° East / West  
S-ARC North = 34.14°  
S-ARC South = 14.77°

Quality Coring: None.

Comments:

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment	Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
				Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
09/29/93		1	DHD130A		185		28.84		6.41	09/29/93			50.5	43.2	16.9%

**Total Redrill Time =**

**Average Penetration Rate =**

**None**

Verticality Information

At Full Depth =	0° North / South X 2.25° East
S-ARC North =	14.77°
S-ARC South =	23.75°

**Comments:**

CUT-OFF WALL EXCAVATION				CUT-OFF WALL CONSTRUCTION									
Drilling Date	Equipment	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
		Excavation Method	Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)						
11/11/93	1	DHD130A	185		19.17		9.65	11/11/93			51.5	43.2	19.2%

Total Redrill Time =  
Average Penetration Rate =  
None

**Vertically Information**

At Full Depth =	2.0" South X 1.0" East
S-ARC North =	23.75"
S-ARC South =	31.08"

**Comments:**



Secondary Pile #648  
Area "C"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
09/24/93	1	DHD130A	185		17.59		10.52		09/27/93			57	43.2	31.9%	

Total Drill Time = 17.59 Hours  
Average Penetration Rate = 10.52 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1.25" North X 0" East / West  
S-ARC North = 31.08"  
S-ARC South = 27.78"

Quality Coring: None.

Comments: Connected with piles 612, 582, 552 & 532

Primary Pile #649  
Area "C"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
11/09/93	1	DHD130A	185		13.67		13.53		11/09/93			47.5	43.2	10.0%	

Total Drill Time = 13.67 Hours  
Average Penetration Rate = 13.53 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 2.0" North X 1.0" East  
S-ARC North = 27.78"  
S-ARC South = 23.76"

Quality Coring: None.

Comments:

Secondary Pile #650  
Area "C"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
09/30/93	1	DHD130A	185		13.83		13.38		10/01/93			49	43.2	13.4%	

Total Drill Time = 13.83 Hours  
Average Penetration Rate = 13.38 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 0° North / South X 0° East / West  
S-ARC North at 185' = 23.76"  
S-ARC North at 130' = 26.76"  
S-ARC South = 24.24"

Quality Coring: None.

Comments:

Primary Pile #651  
Area "C"

CUT - OFF WALL EXCAVATION										CUT - OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non - Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
10/28/93	2	240	130		6.50			20.00		10/28/93			35	30.4	15.3%

Total Drill Time = 6.50 Hours  
Average Penetration Rate = 20.00 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1.5° South X 3.25° West  
S-ARC North = 24.24"  
S-ARC South = 30.41"

Quality Coring: None.

Comments:

Secondary Pile #652  
Area "C"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak		
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
10/08/93	1	DHD130A	130		10.66		12.20			36	30.4	18.6%		

Secondary Pile #654  
Area "C"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)	Concrete Date	GROUT (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
10/14/93	1	DHD130A	130		15.83		8.21		10/14/93			35	30.4	15.3%

Total Drill Time = 15.83 Hours  
Average Penetration Rate = 8.21 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Vertically Information  
At Full Depth = 1.5" North X 1.25" West  
S-ARC North = 28.14"  
S-ARC South = 23.23"

Quality Coring: None.

Comments:

Primary Pile #655  
Area "C"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)	Concrete Date	GROUT (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
11/03/93	1	240	130		7.33		17.74		11/04/93			35	30.4	15.3%

Total Drill Time = 7.33 Hours  
Average Penetration Rate = 17.74 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Vertically Information  
At Full Depth = 0.75" South X 1.0" East  
S-ARC North = 23.23"  
S-ARC South = 27.79"

Quality Coring: None.

Comments:

Secondary Pile #656  
Area "C"

CUT-OFF WALL EXCAVATION														CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak				
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)											
10/18/93	1	XL-24	130		6.50			20.00		10/18/93			36	30.4	18.6%				

Total Drill Time = 6.50 Hours  
Average Penetration Rate = 20.00 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 0° North / South X 0° East / West  
S-ARC North = 27.79"  
S-ARC South = 19.80"

Quality Coring: None.

Comments:

Primary Pile #657  
Area "C"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment		Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
	Rig #	Excavation Method	Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
10/29/93	2	DHD130A	130		9.75		13.33		10/30/93			35	30.4	15.3%	

Total Drill Time = 9.75 Hours  
Average Penetration Rate = 13.33 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 4.25° South X 2.75° West  
S-ARC North = 19.80"  
S-ARC South = 33.62"

Quality Coring: None.

Comments:

Secondary Pile #658  
Area "C"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
10/27/93	2	DHD130A	130		8.16			15.93		10/27/93			35	30.4	15.3%

Total Drill Time = 8.16 Hours  
Average Penetration Rate = 15.93 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1.25" North X 0' East / West  
S-ARC North = 33.62"  
S-ARC South = 24.87"

Quality Coring: None.

Comments:

Primary Pile #659  
Area "C"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION						
Drilling Date	Equipment		Drill Footage		Pure Drill Time			Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
	Rig #	Excavation Method	Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)								
11/10/93	1	240	130		9.50			13.68		11/10/93			35	30.4	15.3%	

Total Drill Time = 9.50 Hours  
Average Penetration Rate = 13.68 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 0' North / South X 1.5" West  
S-ARC North = 24.87"  
S-ARC South = 26.76"

Quality Coring: None.

Comments:

# Daily

## CUT-OFF WALL EXCAVATION

Total Redrill Time =  
Average Penetration Rate =  
None

Verically Information	0° North / South X 2.0° West
At Full Depth =	
S-ARC North =	26.76"
S-ARC South =	26.49"

**Quality Coring: None.**

**Comments:**

### Area "C"

# CUT-OFF WALL EXCAVATION

Total Redrill Time =  
Average Penetration Rate =  
None

0' North / South X 1.0' East

At Full Depth =	26.49"
S-ARC North =	26.70"
S-ARC South =	

**Quality Coring: None.**

**Comments:**

Secondary Pile #662  
Area "C"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
10/25/93	2	XL-24	130		6.83		19.03			10/25/93			35	30.4	15.3%

Total Drill Time = 6.83 Hours  
Average Penetration Rate = 19.03 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 0° North / South X 2.5° East  
S-ARC North = 26.70°  
S-ARC South = 26.58°

Quality Coring: None.

Comments: Cavity 59-63'

Primary Pile #663  
Area "C"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment		Drill Footage		Pure Drill Time			Penetration Rate		Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
	Rig #	Excavation Method	Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT./HR)	Redrill (FT./HR)						
11/02/93	2	DHD130A	130		9.08			14.32			35	30.4	15.3%	

Total Drill Time = 9.08 Hours  
Average Penetration Rate = 14.32 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 0° North / South X 0° East / West  
S-ARC North = 26.58°  
S-ARC South = 25.27°

Quality Coring: None.

Comments:



CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
10/21/93	2	DHD130A	130		9.34		13.92		10/21/93			36	30.4	18.6%

Total Redrill Time =  
Average Penetration Rate =  
None

**Quality Coring: None.**

Primary Pile #665  
Area "C"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
11/04/93	1	XL-24		130		4.37		29.75	11/04/93			35	30.4	15.3%

Total Redrill Time =  
Average Penetration Rate =  
None

**Quality Coring: None.**

**Comments:**

Secondary Pile #666  
Area "C"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
10/19/93	2	240	130		7.75		16.77		10/19/93			38	30.4	25.2%

Total Drill Time = 7.75 Hours  
Average Penetration Rate = 16.77 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 0.75" North X 0" East / West  
S--ARC North = 27.05"  
S--ARC South = 22.43"

Quality Coring: None.

Comments:

Primary Pile #667  
Area "C"

CUT - OFF WALL EXCAVATION										CUT - OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non - Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
12/04/93	1	DHD130A	130		8.67		14.99		12/04/93			34.5	30.4	13.6%

Total Drill Time = 8.67 Hours  
Average Penetration Rate = 14.99 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 2.0" South X 2.25" West  
S--ARC North = 22.43"  
S--ARC South = 27.88"

Quality Coring: None.

Comments:

Secondary Pile #668  
Area "C"

CUT -OFF WALL EXCAVATION										CUT -OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
10/16/93	1	240	130		10.00			13.00	10/16/93			36	30.4	18.6%
11/15/93	1	DHD130A	130	130			7.50	17.33	11/15/93			35	30.4	15.3%

Total Drill Time = 10.00 Hours  
Average Penetration Rate = 13.00 Feet / Hour  
  
Total Redrill Time = 7.50 Hours  
Average Penetration Rate = 17.33 Feet / Hour

Verticality Information  
At Full Depth = 0.75" South X 2.25" East  
S-ARC North = 27.88"  
S-ARC South = 33.14"

Quality Coring: None.

Comments: Caved in to 90' on 10/16/93; cavity 38--55'.

Primary Pile #669  
Area "C"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
11/20/93	1	XL-24	62		1.97		31.47		11/20/93	12	8		14.5	38.1%
11/29/93	1	DHD130A	130	62	4.25	2.92	16.00	21.23	11/29/93			35	30.4	15.3%

Total Drill Time = 6.22 Hours  
Average Penetration Rate = 20.90 Feet / Hour  
  
Total Redrill Time = 2.92 Hours  
Average Penetration Rate = 21.23 Feet / Hour

Verticality Information  
At Full Depth = 4.75" North X 2.5" West  
S-ARC North = 33.14"  
S-ARC South = 24.42"

Quality Coring: None.

Comments:

Secondary Pile #670  
Area "C"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
10/13/93	1	DHD130A	130		15.66		8.30		10/13/93			36.5	30.4	20.2%

Total Drill Time = 15.66 Hours  
Average Penetration Rate = 8.30 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 3.28" North X 0" East / West  
S-ARC North = 24.42"  
S-ARC South = 26.37"

Quality Coring: None.

Comments:

Primary Pile #671  
Area "C"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
10/28/93	2	240	130		6.67			19.49	10/28/93			35	30.4	15.3%

Total Drill Time = 6.67 Hours  
Average Penetration Rate = 19.49 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 3.0" North X 0.5" West  
S-ARC North = 26.37"  
S-ARC South = 24.51"

Quality Coring: None.

Comments:

Secondary Pile #672  
Area "C"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage Drill (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate Drill (FT / HR)	Redrill (FT / HR)	Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
10/08/93	1	DHD130A	130		16.92		7.68		10/11/93			39.5	30.4	30.1%

Total Drill Time = 16.92 Hours  
Average Penetration Rate = 7.68 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1.5" North X 2.0" West  
S-ARC North = 24.51"  
S-ARC South = 25.27"

Quality Coring: None.

Comments:

Primary Pile #673  
Area "C"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage Drill (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate Drill (FT / HR)	Redrill (FT / HR)	Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
10/30/93	2	XL-24	130		5.97		21.78		11/01/93			35	30.4	15.3%

Total Drill Time = 5.97 Hours  
Average Penetration Rate = 21.78 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 0.75" North X 1.75" East  
S-ARC North = 25.27"  
S-ARC South = 25.58"

Quality Coring: None.

Comments:

Secondary Pile #674  
Area "C"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
10/07/93	1	DHD130A	130		11.17		11.64		10/07/93			34	30.4	12.0%

Total Drill Time = 11.17 Hours  
Average Penetration Rate = 11.64 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Vertically Information  
At Full Depth = 0' North / South X 0' East / West  
S-ARC North = 25.58"  
S-ARC South = 32.98"

Quality Coring: None.

Comments:

Primary Pile #675  
Area "C"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
11/03/93	1	DHD130A	130		8.55		15.20		11/03/93			35	30.4	15.3%

Total Drill Time = 8.55 Hours  
Average Penetration Rate = 15.20 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Vertically Information  
At Full Depth = 6.0' North X 6.75' West  
S-ARC North = 32.98"  
S-ARC South = 19.12"

Quality Coring: None.

Comments:

Secondary Pile #676  
Area "C"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)	Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
09/28/93	1	DHD130A	130		11.25		11.56		09/28/93			35	30.4	15.3%

Total Drill Time = 11.25 Hours  
Average Penetration Rate = 11.56 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 2.0° North X 0° East / West  
S-ARC North = 19.12"  
S-ARC South = 26.35"

Quality Coring: None.

Comments:

Primary Pile #677  
Area "C"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)	Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
10/29/93	2	DHD130A	130		9.33		13.93		10/29/93			35	30.4	15.3%

Total Drill Time = 9.33 Hours  
Average Penetration Rate = 13.93 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1.75° North X 0° East / West  
S-ARC North = 26.35"  
S-ARC South = 24.15"

Quality Coring: None.

Comments:

Secondary Pile #678  
Area "C"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate (FT / HR)	Drill (FT / HR)	Overbreak
09/24/93	1	DHD130A	130		9.75		13.33		15.3%

Total Drill Time = 9.75 Hours  
Average Penetration Rate = 13.33 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 0° North / South X 1.0° West  
S-ARC North = 24.15"  
S-ARC South = 27.47"

Quality Coring: None.

Comments:

Primary Pile #679  
Area "C"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate (FT / HR)	Drill (FT / HR)	Overbreak
10/27/93	2	DHD130A	130		10.00		13.00		15.3%

Total Drill Time = 10.00 Hours  
Average Penetration Rate = 13.00 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 0.5° North X 0.5° West  
S-ARC North = 27.47"  
S-ARC South = 24.42"

Quality Coring: None.

Comments:



Secondary Pile #680  
Area "C"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	GROUT (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
09/30/93	1	DHD130A	130		9.16		14.19		09/30/93			35	30.4	15.3%

Total Drill Time = 9.16 Hours  
Average Penetration Rate = 14.19 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1.0° South X 1.5° East  
S-ARC North = 24.42°  
S-ARC South = 29.28°

Quality Coring: None.

Comments:

Primary Pile #681  
Area "C"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
10/26/93	2	XL-24	130		5.00		26.00		10/26/93			32	30.4	5.4%
11/13/93	1	DHD130A	124	124			9.59	12.93	11/13/93			35	29.0	20.9%

Total Drill Time = 5.00 Hours  
Average Penetration Rate = 26.00 Feet / Hour

Total Redrill Time = 9.59 Hours  
Average Penetration Rate = 12.93 Feet / Hour

Verticality Information  
At Full Depth = 1.0° North X 1.25° West  
S-ARC North = 29.28°  
S-ARC South = 27.48°

Quality Coring: None.

Comments: Verticality cage in hole. Cavity developed on platform; backfilled with 35 cy concrete.

Secondary Pile #682  
Area "C"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
10/02/93	1	DHD130A	130		7.75		16.77		10/04/93			35	30.4	15.3%	

Total Drill Time = 7.75 Hours  
Average Penetration Rate = 16.77 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1.5" North X 0.5" East  
S-ARC North = 27.48"  
S-ARC South = 24.43"

Quality Coring: None.

Comments:

Primary Pile #683  
Area "C"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION						
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)								
10/23/93	2	240	130		7.08			18.36		10/23/93			35	30.4	15.3%	

Total Drill Time = 7.08 Hours  
Average Penetration Rate = 18.36 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 0" North / South X 0" East / West  
S-ARC North = 24.43"  
S-ARC South = 26.67"

Quality Coring: None.

Comments:

**Alfred C.**

**CUT-OFF WALL CONSTRUCTION**

Total Redrill Time = None

### Verticality Information

**Comments:**

## Area "C"

**CUT-OFF WALL CONSTRUCTION**

Total Podrill Time - None

### Verticality Information

**Comments:**

Secondary Pile #686  
Area "C"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate (FT / HR)	Drill (FT / HR)	Redrill (FT / HR)	Overbreak
10/07/93	1	DHD130A	130	12.50		10.40			12.0%
							Concrete Date	GROUT (CU.YD.)	Non-Spec. Concrete (CU.YD.)
							10/07/93		34
									Spec. Concrete (CU.YD.)
									Theoretical Volume (CU.YD.)
									30.4

Total Drill Time = 12.50 Hours  
Average Penetration Rate = 10.40 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Vertically Information  
At Full Depth = 0° North / South X 2.5° East  
S-ARC North = 25.08°  
S-ARC South = 22.00°

Quality Coring: None.

Comments:

Primary Pile #687  
Area "C"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate (FT / HR)	Drill (FT / HR)	Redrill (FT / HR)	Overbreak
01/21/94	1	DHD130A	130	4.67		27.84			16.9%
							Concrete Date	GROUT (CU.YD.)	Non-Spec. Concrete (CU.YD.)
							01/21/94		35.5
									Spec. Concrete (CU.YD.)
									Theoretical Volume (CU.YD.)
									30.4

Total Drill Time = 4.67 Hours  
Average Penetration Rate = 27.84 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Vertically Information  
At Full Depth = 3.0° South X 0° East / West  
S-ARC North = 22.00°  
S-ARC South = 30.59°

Quality Coring: None.

Comments:

**Area "D"**

Total Drill Time =	9.45 Hours
Average Penetration Rate =	13.76 Feet / Hour
Total Redrill Time =	4.41 Hours
Average Penetration Rate =	36.28 Feet / Hour

### Verticality Information

At Full Depth =	0° North / South X 2.5" East
S-ARC North =	30.59"
S-ARC South =	20.71"

**Quality Coring: None.**

**Comments:** Hole caved in to 22' after drilling to 130' on 10/9/93. Placed 6cy of concrete  
Hole connected with hole 672

## Area "D"

Total Drill Time =	5.71 Hours
Average Penetration Rate =	22.77 Feet / Hour
Total Redrill Time =	2.25 Hours
Average Penetration Rate =	28.44 Feet / Hour

### Verticality Information

At Full Depth =	3.5" South X 2.0" West
S-ARC North =	20.71"
S-ARC South =	31.29"

**Quality Coring: None.**

Comments: Hole redrilled accidentally by contractor on 2/23/94

Secondary Pile #690  
Area "D"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Pure Drill Time (HRS)	Redrill (FT)	Redrill (HRS)	Drill (FT / HR)	Penetration Rate (FT / HR)	Redrill (FT / HR)
10/15/93	1	DHD130A	94	5.88			15.99		28.06
01/31/94	1	DHD130A	130	2.00	94	3.35	18.00		
Total Drill Time = 7.88 Hours									
Average Penetration Rate = 16.50 Feet / Hour									
Total Redrill Time = 3.35 Hours									
Average Penetration Rate = 28.06 Feet / Hour									
Verticality Information									
At Full Depth = 0° North / South X 0° East / West									
S-ARC North = 31.29°									
S-ARC South = 21.92°									
Quality Coring: None.									
Comments: 10/15/93 depth of concrete placement = 30'; sinkhole developed took 23 cy on upstream, 2nd sinkhole on downstream side of rig took 29 cy.									

Total Drill Time = 7.88 Hours  
Average Penetration Rate = 16.50 Feet / Hour  
Total Redrill Time = 3.35 Hours  
Average Penetration Rate = 28.06 Feet / Hour

Verticality Information  
At Full Depth = 0° North / South X 0° East / West  
S-ARC North = 31.29°  
S-ARC South = 21.92°

Quality Coring: None.

Comments: 10/15/93 depth of concrete placement = 30'; sinkhole developed took 23 cy on upstream, 2nd sinkhole on downstream side of rig took 29 cy.

Primary Pile #691  
Area "D"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Pure Drill Time (HRS)	Redrill (FT)	Redrill (HRS)	Drill (FT / HR)	Penetration Rate (FT / HR)	Redrill (FT / HR)
01/26/94	1	DHD130A	60	3.17			18.93		14.71
02/15/94	2	XL-24	130	1.92	60	4.08	36.46		
Total Drill Time = 5.09 Hours									
Average Penetration Rate = 25.54 Feet / Hour									
Total Redrill Time = 4.08 Hours									
Average Penetration Rate = 14.71 Feet / Hour									
Verticality Information									
At Full Depth = 3.0° South X 3.0° West									
S-ARC North = 21.92°									
S-ARC South = 29.16°									
Quality Coring: None.									
Comments:									

Total Drill Time = 5.09 Hours  
Average Penetration Rate = 25.54 Feet / Hour  
Total Redrill Time = 4.08 Hours  
Average Penetration Rate = 14.71 Feet / Hour

Verticality Information  
At Full Depth = 3.0° South X 3.0° West  
S-ARC North = 21.92°  
S-ARC South = 29.16°

Quality Coring: None.

Comments:

Secondary Pile #692  
Area "D"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Drill (FT/Hr)	Redrill (FT/Hr)	Penetration Rate (FT/Hr)	Overbreak
01/24/94	1	DHD130A	65		3.16	20.57		60	295.3%
02/03/94	1	XL-24	130	65	2.87	22.65	67.01		20.2%

Total Drill Time = 6.03 Hours  
Average Penetration Rate = 21.56 Feet / Hour  
  
Total Redrill Time = 0.97 Hours  
Average Penetration Rate = 67.01 Feet / Hour

Verticality Information  
At Full Depth = 1.0° South X 0.25° East  
S-ARC North = 29.16"  
S-ARC South = 28.70"

Quality Coring: None.

Comments: Connected with pile 717. Both holes 692 & 717 filled simultaneously with grout - 60 cy total.

Primary Pile #693  
Area "D"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Drill (FT/Hr)	Redrill (FT/Hr)	Penetration Rate (FT/Hr)	Overbreak
01/28/94	1	DHD130A	63		2.62	24.05		18	22.4%
02/22/94	2	XL-24	130	63	2.90	23.10	39.38		13.6%

Total Drill Time = 5.52 Hours  
Average Penetration Rate = 23.53 Feet / Hour  
  
Total Redrill Time = 1.60 Hours  
Average Penetration Rate = 39.38 Feet / Hour

Verticality Information  
At Full Depth = 0.5° North X 2.5° East  
S-ARC North = 28.70"  
S-ARC South = 26.01"

Quality Coring: None.

Comments: 1/29/93 18 cu. yds. in pile, 48 cu. yds. for platform collapse, near pile 695 upstream of wall.

Secondary Pile #694  
Area "D"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
01/25/94	1	DHD130A	59		4.92		11.99		01/26/94	18			13.8	30.6%
02/15/94	1	XL-24	130	59	3.97	1.78	17.88	33.15	02/15/94			34	30.4	12.0%

Total Drill Time = 8.89 Hours  
Average Penetration Rate = 14.62 Feet / Hour  
  
Total Redrill Time = 1.78 Hours  
Average Penetration Rate = 33.15 Feet / Hour

Verticality Information  
At Full Depth = 0° North / South X 1.5° East  
S-ARC North = 26.01°  
S-ARC South = 23.70°

Quality Coring: None.

Comments:

Primary Pile #695  
Area "D"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
02/02/94	1	DHD130A	60		3.50		17.14		02/02/94	16			14.0	14.2%
02/26/94	2	XL-24	130	60	2.92	1.58	23.97	37.97	02/26/94			36.5	30.4	20.2%

Total Drill Time = 6.42 Hours  
Average Penetration Rate = 20.25 Feet / Hour  
  
Total Redrill Time = 1.58 Hours  
Average Penetration Rate = 37.97 Feet / Hour

Verticality Information  
At Full Depth = 1.75° South X 2.5° West  
S-ARC North = 23.70°  
S-ARC South = 26.49°

Quality Coring: None.

Comments:



Secondary Pile #696  
Area "D"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
01/27/94	1	DHD130A	44		3.27		13.46		01/28/94	12			10.3	16.8%
02/18/94	2	DHD130A	130	44	5.83	1.92	14.75	22.92	02/18/94			35	30.4	15.3%

Total Drill Time = 9.10 Hours  
Average Penetration Rate = 14.29 Feet / Hour  
Total Redrill Time = 1.92 Hours  
Average Penetration Rate = 22.92 Feet / Hour

Verticality Information  
At Full Depth = 1.75" South X 0.5" East  
S-ARC North = 28.49"  
S-ARC South = 28.30"

Quality Coring: None.

Comments: Connected with pile 720

Primary Pile #697  
Area "D"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
02/11/94	1	DHD130A	59		4.00		14.75		02/11/94	20			13.8	45.2%
03/02/94	2	DHD130A	130	59	4.71	3.12	15.07	18.91	03/03/94			34.5	30.4	13.6%

Total Drill Time = 8.71 Hours  
Average Penetration Rate = 14.93 Feet / Hour  
Total Redrill Time = 3.12 Hours  
Average Penetration Rate = 18.91 Feet / Hour

Verticality Information  
At Full Depth = 0.5" South X 2.0" West  
S-ARC North = 28.30"  
S-ARC South = 33.84"

Quality Coring: None.

Comments:

Secondary Pile #698  
Area "D"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
02/03/94	1	DHD130A	60		5.08		11.81		02/03/94	16			14.0	14.2%	
02/23/94	2	XL-24	130	60	3.40	0.93	20.59	64.52	02/23/94			35.5	30.4	16.9%	

Total Drill Time = 8.48 Hours  
Average Penetration Rate = 15.33 Feet / Hour  
  
Total Redrill Time = 0.93 Hours  
Average Penetration Rate = 64.52 Feet / Hour

Vertically Information  
At Full Depth = 5.0' North X 3.0' West  
S--ARC North = 33.84"  
S--ARC South = 20.38"

Quality Coring: None.  
Comments:

Primary Pile #699  
Area "D"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
02/14/94	1	DHD130A	54		3.17		17.03		02/14/94	15			12.6	19.0%
02/28/94	2	DHD130A	130	54	4.60	2.07	16.52	26.09	03/01/94			32.5	30.4	7.1%

Total Drill Time = 7.77 Hours  
Average Penetration Rate = 16.73 Feet / Hour  
  
Total Redrill Time = 2.07 Hours  
Average Penetration Rate = 26.09 Feet / Hour

Vertically Information  
At Full Depth = 1.0' North X 1.0' West  
S--ARC North = 20.38"  
S--ARC South = 26.04"

Quality Coring: None.  
Comments:

Secondary Pile #700  
Area "D"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
02/05/94	1	DHD130A	62		6.58		9.42		02/05/94	16				14.5	10.5%
02/22/94	2	DHD130A	131	62	4.58	2.58	15.07	24.03	02/22/94			34	30.6		11.1%

Total Drill Time = 11.16 Hours  
Average Penetration Rate = 11.74 Feet / Hour  
  
Total Redrill Time = 2.58 Hours  
Average Penetration Rate = 24.03 Feet / Hour

Verticality Information  
At Full Depth = 0.5" North X 1.5" West  
S-ARC North = 26.04"  
S-ARC South = 29.45"

Quality Coring: None.  
Comments:

Primary Pile #701  
Area "D"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
02/16/94	2	XL-24	65		3.80		17.11		02/16/94	18			15.2	18.6%
02/26/94	2	DHD130A	130	65	5.30		12.26	20.31	02/26/94			35	30.4	15.3%

Total Drill Time = 9.10 Hours  
Average Penetration Rate = 14.29 Feet / Hour  
  
Total Redrill Time = 3.20 Hours  
Average Penetration Rate = 20.31 Feet / Hour

Verticality Information  
At Full Depth = 2.5" North X 0.5" West  
S-ARC North = 29.45"  
S-ARC South = 26.02"

Quality Coring: None.  
Comments:

Secondary Pile #702  
Area "D"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
10/18/93	2	240		31		1.00		31.00	10/19/93		13		7.2	79.6%
02/03/94	1	DHD130A		33		0.17	1.50	11.76	02/04/94	30			7.7	289.3%
02/19/94	2	DHD130A		130		5.37	1.22	18.06	02/19/94			35	30.4	15.3%

Total Drill Time = 6.54 Hours  
Average Penetration Rate = 19.88 Feet / Hour

Total Redrill Time = 2.72 Hours  
Average Penetration Rate = 23.53 Feet / Hour

Verticality Information  
At Full Depth = 2.0° North X 0.5° East  
S-ARC North = 26.02°  
S-ARC South = 22.98°

Quality Coring: None.

Comments: Connected with pile 709, both piles 702 & 709 filled simultaneously with grout

Primary Pile #703  
Area "D"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
02/11/94	1	DHD130A	52		4.58			11.35	02/11/94	25			12.1	105.9%
03/03/94	2	DHD130A	130	52	6.00	3.00		13.00	03/04/94			32	30.4	5.4%

Total Drill Time = 10.58 Hours  
Average Penetration Rate = 12.29 Feet / Hour

Total Redrill Time = 3.00 Hours  
Average Penetration Rate = 17.33 Feet / Hour

Verticality Information  
At Full Depth = 0.5° South X 0° East / West  
S-ARC North = 22.98°  
S-ARC South = 23.81°

Quality Coring: None.

Comments:

Secondary Pile #704  
Area "D"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
10/13/94	1	DHD130A	44		6.17		7.13		10/13/94	18			10.3	75.2%	
02/02/94	1	DHD130A	27	27		1.42	19.01	19.01	02/02/94	24			6.3	280.7%	
02/15/94	2	XL-24	65	44	1.17	0.83	17.95	53.01	02/15/94	25			15.2	64.7%	
02/23/94	2	XL-24	130	65	2.84	1.00	22.89	65.00	02/23/94			36	30.4	18.6%	

Total Drill Time = 10.18 Hours  
Average Penetration Rate = 12.77 Feet / Hour  
  
Total Redrill Time = 3.25 Hours  
Average Penetration Rate = 41.85 Feet / Hour

Verticality Information  
At Full Depth = 2.5" South X 0.25" East  
S-ARC North = 23.81"  
S-ARC South = 30.14"

Quality Coring: None.

Comments:

Primary Pile #705  
Area "D"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
02/08/94	1	DHD130A	61		4.25		14.35		02/08/94	20			14.2	40.4%	
03/02/94	2	DHD130A	130	61	4.18	2.81	16.51	21.71	03/02/94			35	30.4	15.3%	

Total Drill Time = 8.43 Hours  
Average Penetration Rate = 15.42 Feet / Hour  
  
Total Redrill Time = 2.81 Hours  
Average Penetration Rate = 21.71 Feet / Hour

Verticality Information  
At Full Depth = 0" North / South X 0" East / West  
S-ARC North = 30.14"  
S-ARC South = 25.27"

Quality Coring: None.

Comments:

Secondary Pile #706  
Area "D"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
09/29/93	1	DHD130A	130		12.92		10.06		09/30/93			35	30.4	15.3%

Total Drill Time = 12.92 Hours  
Average Penetration Rate = 10.06 Feet / Hour

Total Redrill Time =  
Average Penetration Rate =  
None

Verticality Information	
At Full Depth =	1.0" South X 1.0" West
S-APC North =	25.27"
S-APC South =	25.29"

**Quality Coring: None.**

**Comments:**

Primary Pile #707  
Area "D"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
01/26/94	1	DHD130A	57		5.41			10.54		01/27/94	11			13.3	-17.4%
02/26/94	2	XL-24	130	57	2.90	1.27	25.17	44.88		02/26/94			33	30.4	8.7%

Total Drill Time = 8.31 Hours  
Average Penetration Rate = 15.64 Feet / Hour

Total Redrill Time = 1.27 Hours  
Average Penetration Rate = 44.88 Feet / Hour

Vertically Information		2.0° South X 0° East / West
At Full Depth =		25.29'
S--ARC North =		28.83'
S--ARC South =		

Quality Coring: None.

**Comments:**

# Secondary Pile #708

Area "D"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Drill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)	Concrete Date
09/23/93	1	DHD130A	130		11.75		11.06		09/23/93
Total Drill Time = 11.75 Hours					Theoretical Volume (CU.YD.)				
Average Penetration Rate = 11.06 Feet / Hour					Spec. Concrete (CU.YD.)				
Total Redrill Time = None					Non-Spec. Concrete (CU.YD.)				
Average Penetration Rate = None					Grout (CU.YD.)				
Verticality Information					Concrete Date				
At Full Depth = 0.5" South X 0" East / West					Theoretical Volume (CU.YD.)				
S-ARC North = 28.83"					Spec. Concrete (CU.YD.)				
S-ARC South = 30.14"					Overbreak				
Quality Coring: None.					30.4				
Comments:					28.5%				

# Primary Pile #709

Area "D"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Drill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)	Concrete Date
01/25/94	1	DHD130A	25		1.57		15.92		01/26/94
01/28/94	1	DHD130A	28		0.18	0.25	16.67	100.00	01/29/93
02/03/94	1	DHD130A	30		0.08	0.67	25.00	41.79	02/04/94
02/08/94	1	DHD30	62		3.20	1.80	10.00	16.67	02/08/94
02/18/94	2	XL-24	130		6.75	1.17	10.07	52.99	02/18/94
Total Drill Time = 11.78 Hours					Theoretical Volume (CU.YD.)				
Average Penetration Rate = 11.04 Feet / Hour					Spec. Concrete (CU.YD.)				
Total Redrill Time = 3.89 Hours					Non-Spec. Concrete (CU.YD.)				
Average Penetration Rate = 37.28 Feet / Hour					Grout (CU.YD.)				
Verticality Information					Concrete Date				
At Full Depth = 2.0" North X 0.5" East					Theoretical Volume (CU.YD.)				
S-ARC North = 30.14"					Spec. Concrete (CU.YD.)				
S-ARC South = 23.00"					Overbreak				
Quality Coring: None.					5.8				
Comments: Cavity at 25', Connected with pile 702 while grouting on 02/04/94					6.5				
					7.0				
					14.5				
					34				
					105.6%				
					129.4%				
					14.2%				
					52.0%				
					12.0%				

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
10/01/93	1	DHD130A		130		22.59		5.75		10/02/93			35	30.4	15.3%

At Full Depth =	0.5" South X 0" East / West
S--ARC North =	23.00"
S--ARC South =	25.30"

Primary Pile #711  
Area "D"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment	Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
				Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
01/24/94		1	DHD130A		61	4.08		14.95		01/25/94	20			14.2	40.4%
02/01/94		1	DHD130A		130	6.33	61	2.83	21.55	02/01/94			32.5	30.4	7.1%

**Verticality Information**

At Full Depth =	1.5" South X 0" East / West
S-ARC North =	25.30"
S-ARC South =	24.49"

Quality Coring: None.

Comments:



Secondary Pile #712  
Area "D"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage Drill (FT)	Redrill (FT)	Pure Drill Time Drill (HRS)	Redrill (HRS)	Penetration Rate Drill (FT / HR)	Redrill (FT / HR)	Concrete Date
10/05/93	1	DHD130A	130		17.33		7.50		10/05/93
Total Drill Time = 17.33 Hours					Theoretical Volume (CU.YD.)				
Average Penetration Rate = 7.50 Feet / Hour					Spec. Concrete (CU.YD.)				
Total Redrill Time = None					Non-Spec. Concrete (CU.YD.)				
Average Penetration Rate = None					Grout (CU.YD.)				
Vertically Information					Overbreak				
At Full Depth = 3.0" South X 1.5" West									
S-ARC North = 24.49"									
S-ARC South = 30.75"									
Quality Coring: None.									
Comments:									

Total Drill Time = 17.33 Hours  
Average Penetration Rate = 7.50 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate = None

Vertically Information  
At Full Depth = 3.0" South X 1.5" West  
S-ARC North = 24.49"  
S-ARC South = 30.75"

Quality Coring: None.

Comments:

Primary Pile #713  
Area "D"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage Drill (FT)	Redrill (FT)	Pure Drill Time Drill (HRS)	Redrill (HRS)	Penetration Rate Drill (FT / HR)	Redrill (FT / HR)	Concrete Date
02/04/94	1	DHD130A	44		2.50		17.60		02/08/94
02/21/94	2	DHD130A	38	38		2.00		19.00	02/21/94
02/24/94	2	DHD130A	66	44	0.80	1.03	27.50	42.72	02/24/94
03/09/94	2	XL-24	130	66	2.58	1.33	24.81	49.62	03/10/94
Total Drill Time = 5.88 Hours					Theoretical Volume (CU.YD.)				
Average Penetration Rate = 22.11 Feet / Hour					Spec. Concrete (CU.YD.)				
Total Redrill Time = 4.36 Hours					Non-Spec. Concrete (CU.YD.)				
Average Penetration Rate = 33.94 Feet / Hour					Grout (CU.YD.)				
Vertically Information					Overbreak				
At Full Depth = 0" North / South X 0.25" West									
S-ARC North = 30.75"									
S-ARC South = 25.21"									
Quality Coring: None.									
Comments: Connected with pile 719									

Total Drill Time = 5.88 Hours  
Average Penetration Rate = 22.11 Feet / Hour

Total Redrill Time = 4.36 Hours  
Average Penetration Rate = 33.94 Feet / Hour

Vertically Information  
At Full Depth = 0" North / South X 0.25" West  
S-ARC North = 30.75"  
S-ARC South = 25.21"

Quality Coring: None.

Comments: Connected with pile 719

Secondary Pile #714  
Area "D"

CUT - OFF WALL CONSTRUCTION														
CUT-OFF WALL EXCAVATION														
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate (FT / HR)		Concrete Date	GROUT (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
							Drill (FT / HR)	Redrill (FT / HR)						
10/06/93	1	DHD130A	50		3.75		13.33		10/09/93		24		11.7	105.6%
10/19/93	2	DHD130A	123	50	6.58	4.17	11.09	11.99	10/14/93		36		28.7	25.3%
01/22/94	1	DHD130A	27	27		1.50		18.00	01/22/94	60			6.3	851.6%
01/27/94	1	DHD130A	46	46		1.83		25.14	01/27/94	34			10.7	216.5%
02/12/94	1	XL-24	55	55		1.58		34.81	02/14/94	47			12.8	265.9%
02/28/94	1	XL-24	130	123	1.25	6.25	5.60	19.68	02/28/94			38	30.4	25.2%

Total Drill Time = 11.58 Hours  
Average Penetration Rate = 11.23 Feet / Hour

Total Redrill Time = 15.33 Hours  
Average Penetration Rate = 19.63 Feet / Hour

Verticality Information  
At Full Depth = 1.0° South X 1.5° East  
S-ARC North = 25.21"  
S-ARC South = 31.77"

Quality Coring: None.

Comments: The side of hole upstream caved as hole was drilled past overburden trench causing a cave in side of hole.  
Cavity 42-50', lost circulation at 49'. Caved in from 123' to 15 feet on 10/19/93.  
Platform collapsed upstream requiring 99 cy of grout to fill.

Primary Pile #715  
Area "D"

CUT-OFF WALL EXCAVATION

CUT-OFF WALL CONSTRUCTION

Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
01/29/94	1	DHD130A	43						02/02/94	18			10.0	79.3%
03/04/94	2	XL-24	130	43					03/05/94			33	30.4	8.7%

Total Drill Time =  
Average Penetration Rate = Hours Feet / Hour

Total Redrill Time =  
Average Penetration Rate = Hours Feet / Hour

Verticality Information  
At Full Depth = 3.0° North X 4.5° East  
S-ARC North = 31.77"  
S-ARC South = 20.88"

Quality Coring: None.

Comments:

Secondary Pile #716  
Area "D"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
10/11/93	1	DHD130A	130		8.25		15.76		10/12/93			36	30.4	18.6%

Total Drill Time = 8.25 Hours  
Average Penetration Rate = 15.76 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 0° North / South X 2.0° West  
S-ARC North = 20.88°  
S-ARC South = 30.68°

Quality Coring: None.

Comments:

Primary Pile #717  
Area "D"

Area D

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment		Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
	Rig #	Excavation Method	Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
01/24/94	1	DHD130A	42		2.00		21.00		01/24/94	60			9.8	511.8%
03/03/94	2	DHD130A	131	42	5.75	1.17	15.48	35.90	03/04/94			33	30.6	7.9%

Total Drill Time = 7.75 Hours  
Average Penetration Rate = 16.90 Feet / Hour

Total Redrill Time = 1.17 Hours  
Average Penetration Rate = 35.90 Feet / Hour

Verticality Information  
At Full Depth = 3.0° North X 0° East / West  
S-ARC North = 30.65°  
S-ARC South = 22.12°

Quality Coring: None.

Comments: Connected with pile 692, holes filled simultaneously - 60 cy total.

Secondary Pile #718  
Area "D"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
10/14/93	1	240		130		7.92		16.41		10/15/93			36	30.4	18.6%

Total Drill Time = 7.92 Hours  
Average Penetration Rate = 16.41 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Vertically Information  
At Full Depth = 0' North / South X 1.5' West  
S-ARC North = 22.12"  
S-ARC South = 18.78"

Quality Coring: None.

Comments:

Primary Pile #719  
Area "D"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION						
Drilling Date	Equipment		Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
	Rig #	Excavation Method	Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)								
02/04/94	1	DHD130A	38		2.13		17.84			02/08/94	35			8.9	294.4%	
02/16/94	2	XL-24	65	38	1.17	0.83	23.08	45.78		02/16/94	22			15.2	44.9%	
03/06/94	2	XL-24	130	65	3.08	1.67	21.10	38.92		03/07/94			34	30.4	12.0%	

Total Drill Time = 6.38 Hours  
Average Penetration Rate = 20.38 Feet / Hour

Total Redrill Time = 2.50 Hours  
Average Penetration Rate = 41.20 Feet / Hour

Vertically Information  
At Full Depth = 4.75' South X 1.75' East  
S-ARC North = 18.78"  
S-ARC South = 35.32"

Quality Coring: None.

Comments: Connected with pile 713, both holes grouted simultaneously.

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment	Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
				Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
10/16/93		1	XL-24		44		1.17		37.61	10/16/93			9.0	10.3	-12.4%
01/27/94		1	DHD130A		30		30		1.67	01/28/94	30	2.3		7.0	361.1%
02/23/94		2	XL-24		131		3.58		24.30	02/23/94			34	30.6	11.1%

At Full Depth = 2.0" North X 2.5" East

S-ARC North =	35.32"
S-ARC South =	22.11"

**Comments:** Connected with pile 696.

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
02/02/94	1	DHD130A	60		2.78		21.58			02/02/94	18			14.0	28.5%
03/02/94	2	DHD130A	130	60	5.08	3.25	13.78	18.46		03/02/94			34	30.4	12.0%

Verticality Information

At Full Depth =	1.0" South X 1.0" East
S - APC North =	22.11"
S - APC South =	29.88"

Comments:

Secondary Pile #722  
Area "D"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate (FT / HR)	Drill (FT / HR)	Redrill (FT / HR)
10/18/93	2	240	47		1.84		25.54		
02/19/94	2	DHD130A	130	47	6.18	2.57	13.43		18.29

Total Drill Time = 8.02 Hours  
Average Penetration Rate = 16.21 Feet / Hour  
  
Total Redrill Time = 2.57 Hours  
Average Penetration Rate = 18.29 Feet / Hour

Verticality Information  
At Full Depth = 1.5" North X 2.0" West  
S-ARC North = 29.88"  
S-ARC South = 21.31"

Quality Coring: None.

Comments:

Primary Pile #723  
Area "D"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate (FT / HR)	Drill (FT / HR)	Redrill (FT / HR)
02/02/94	1	DHD130A	60		3.75		16.00		
03/10/94	2	XL-24	130	60	3.08	1.50	22.73		40.00

Total Drill Time = 6.83 Hours  
Average Penetration Rate = 19.03 Feet / Hour  
  
Total Redrill Time = 1.50 Hours  
Average Penetration Rate = 40.00 Feet / Hour

Verticality Information  
At Full Depth = 2.0" South X 3.0" West  
S-ARC North = 21.31"  
S-ARC South = 29.02"

Quality Coring: None.

Comments:

Secondary Pile #724  
Area "D"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION									
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Redrill (FT)	Drill (FT)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)	Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
10/21/94	1	DHD130A	60		3.58		16.76		60		2.50			01/26/94	18			14.0	28.5%
02/25/94	2	DHD130A	130		5.33		13.13							02/25/94			33.5	30.4	10.4%

Total Drill Time = 8.91 Hours  
Average Penetration Rate = 14.59 Feet / Hour

Total Redrill Time = 2.50 Hours  
Average Penetration Rate = 24.00 Feet / Hour

Vertically Information  
At Full Depth = 0' North / South X 1.0' East  
S-ARC North = 29.02"  
S-ARC South = 23.76"

Quality Coring: None.  
Comments:

Primary Pile #725  
Area "D"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION									
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Redrill (FT)	Drill (FT)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)	Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
02/03/94	1	DHD130A	60		2.25		26.67		60		1.67			02/04/94	20			14.0	42.7%
03/04/94	2	XL-24	130		2.67		26.22							03/05/94			34.5	30.4	13.6%

Total Drill Time = 4.92 Hours  
Average Penetration Rate = 26.42 Feet / Hour

Total Redrill Time = 1.67 Hours  
Average Penetration Rate = 35.93 Feet / Hour

Vertically Information  
At Full Depth = 2.0' South X 0' East / West  
S-ARC North = 23.76"  
S-ARC South = 28.12"

Quality Coring: None.  
Comments:

Secondary Pile #726  
Area "D"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION									
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Redrill (HRS)	Redrill (FT / HR)	Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak			
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)											
01/28/94	1	DHD130A	30		1.08		27.78				01/29/94	12	23		7.0	104.1%			
02/21/94	2	DHD130A	60	30	1.80	0.73	16.67	0.73		41.10	02/22/94	40			14.0	185.9%			
02/26/94	2	XL-24	131	60	3.00	0.80	23.67	0.80		75.00	02/28/94			38	30.6	24.2%			

Total Drill Time = 5.88 Hours  
Average Penetration Rate = 22.28 Feet / Hour  
  
Total Redrill Time = 1.53 Hours  
Average Penetration Rate = 58.82 Feet / Hour

Vertically Information  
At Full Depth = 1.0' South X 1.0' East  
S--ARC North = 28.12"  
S--ARC South = 26.64"

Quality Coring: None.  
Comments:

Primary Pile #727  
Area "D"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION									
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Redrill (HRS)	Redrill (FT / HR)	Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak			
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)											
02/14/94	1	DHD130A	63		3.20		19.69				02/14/94				14.7	165.1%			
03/07/94	2	XL-24	130	63	2.50	1.33	26.80	1.33		47.37	03/10/94	39		35	30.4	15.3%			

Total Drill Time = 5.70 Hours  
Average Penetration Rate = 22.81 Feet / Hour  
  
Total Redrill Time = 1.33 Hours  
Average Penetration Rate = 47.37 Feet / Hour

Vertically Information  
At Full Depth = 0.75' South X 3.0' West  
S--ARC North = 26.64"  
S--ARC South = 27.20"

Quality Coring: None.  
Comments:



Secondary Pile #728  
Area "D"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION									
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate (FT / HR)	Drill (FT / HR)	Redrill (FT / HR)	Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak				
02/08/94	1	DHD130A	61		4.91		12.42			02/08/94	15			14.2	5.3%				
03/02/94	2	DHD130A	130	61	4.92	2.17	14.02		28.11	03/03/94			34.5	30.4	13.6%				

Total Drill Time = 9.83 Hours  
Average Penetration Rate = 13.22 Feet / Hour  
  
Total Redrill Time = 2.17 Hours  
Average Penetration Rate = 28.11 Feet / Hour

Vertically Information  
At Full Depth = 0' North / South X 1.5' East  
S-ARC North = 27.20"  
S-ARC South = 23.78"

Quality Coring: None.  
Comments:

Primary Pile #729  
Area "D"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION									
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate (FT / HR)	Drill (FT / HR)	Redrill (FT / HR)	Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak				
02/17/94	2	DHD130A	67		4.66		14.38			02/17/94	64			15.6	309.1%				
03/11/94	2	XL-24	131	67	2.42	1.58	26.45		42.41	03/12/94			34	30.6	11.1%				

Total Drill Time = 7.08 Hours  
Average Penetration Rate = 18.50 Feet / Hour  
  
Total Redrill Time = 1.58 Hours  
Average Penetration Rate = 42.41 Feet / Hour

Vertically Information  
At Full Depth = 2.0' South X 2.25' East  
S-ARC North = 23.78"  
S-ARC South = 27.83"

Quality Coring: None.  
Comments: 2/17/94 34 cu. yd. re-pour of grout due to lost bit.

Secondary Pile # 730  
Area "D"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
01/27/94	1	DHD130A	27		1.17		23.08			01/27/94	21			6.3	233.1%
02/23/94	2	DHD130A	65		1.42		26.76	1.18		02/23/94	22			15.2	44.9%
03/02/94	1	DHD130A	130		5.83		11.15	2.58		03/02/94			35	30.4	15.3%

Total Drill Time = 8.42 Hours  
Average Penetration Rate = 15.44 Feet / Hour  
  
Total Redrill Time = 3.76 Hours  
Average Penetration Rate = 24.47 Feet / Hour

Verticality Information  
At Full Depth = 1" South X 1" West  
S-ARC North = 23.78  
S-ARC South = 28.15

Quality Coring: None.

Comments:

Primary Pile # 731  
Area "D"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Redrill (FT / HR)	Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
02/11/94	2	DHD130A		56		3.47		16.14		02/11/94	54			13.1	312.9%
03/06/94	1	XL-24		131		2.67	1.25	28.09	44.80	03/07/94			34	30.6	11.1%

Total Drill Time = 6.14 Hours  
Average Penetration Rate = 21.34 Feet / Hour  
  
Total Redrill Time = 1.25 Hours  
Average Penetration Rate = 44.80 Feet / Hour

Verticality Information  
At Full Depth = 0" N/S X 1.5" West  
S-ARC North = 28.15  
S-ARC South = 28.43

Quality Coring: None.

Comments:

Secondary Pile # 732  
Area "D"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
01/24/94	1	DHD130A	25		1.17		21.37		01/25/94	18			5.8	208.3%
01/29/94	1	DHD130A	31	25	0.27	0.53	22.22	47.17	01/29/94	12	1		7.2	79.6%
02/19/94	1	DHD130A	65	31	1.75	1.08	19.43	28.70	02/19/94	20			15.2	31.8%
02/24/94	2	XL-24	131	31	2.92	1.25	34.25	24.80	02/26/94			34	30.6	11.1%

Total Drill Time = 6.11 Hours  
Average Penetration Rate = 27.00 Feet / Hour  
  
Total Redrill Time = 2.86 Hours  
Average Penetration Rate = 30.42 Feet / Hour

Verticality Information  
At Full Depth = 1.25" North X 0" E/W  
S-ARC North = 28.15  
S-ARC South = 28.42

Quality Coring: None.

Comments:

Primary Pile # 733  
Area "D"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
02/04/94	1	DHD130A	60		2.85		21.05		02/05/94	92			14.0	556.6%
03/10/94	2	XL-24	130	60	3.25	1.67	21.54	35.93	03/11/94			34	30.4	12.0%

Total Drill Time = 6.10 Hours  
Average Penetration Rate = 21.31 Feet / Hour  
  
Total Redrill Time = 1.67 Hours  
Average Penetration Rate = 35.93 Feet / Hour

Verticality Information  
At Full Depth = 2.5" North X 1.5" East  
S-ARC North = 28.43  
S-ARC South = 20.34

Quality Coring: None.

Comments:

Secondary Pile # 734  
Area "D"

Area D

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
01/26/94	1	DHD130A	29		1.42		20.42		01/26/94	12			6.8	77.2%	
02/16/94	2	XL-24	65	29	1.08	0.58	33.33	50.00	02/16/94	37			15.2	143.8%	
02/24/94	2	DHD130A	130	65	4.59	2.08	14.16	31.25	02/24/94			35.5	30.4	16.9%	

Total Drill Time = 7.09 Hours  
Average Penetration Rate = 18.34 Feet / Hour  
  
Total Redrill Time = 2.66 Hours  
Average Penetration Rate = 35.34 Feet / Hour

Verticality Information  
At Full Depth = 1.5" South X .5" West  
S-ARC North = 28.42  
S-ARC South = 28.77

Quality Coring: None.

Comments:

Primary Pile # 735  
Area "D"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak	
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
02/02/94	1	DHD130A	56		3.25		17.23		02/03/94	16			13.1	22.4%	
03/04/94	2	DHD130A	131	56	4.17	2.67	17.99	20.97	03/05/94			33.5	30.6	9.5%	

Total Drill Time = 7.42 Hours  
Average Penetration Rate = 17.65 Feet / Hour  
  
Total Redrill Time = 2.67 Hours  
Average Penetration Rate = 20.97 Feet / Hour

Verticality Information  
At Full Depth = 0" N/S X 2" West  
S-ARC North = 20.34  
S-ARC South = 28.13

Quality Coring: None.

Comments:

Secondary Pile # 736  
Area "D"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
01/24/94	1	DHD130A	27		0.58		46.55		01/25/94	24			6.3	280.7%	
01/27/94	1	DHD130A	30	27	0.50	0.25	6.00	108.00	01/28/94	12			7.0	71.3%	
02/15/94	1	XL-24	65	30	1.03	0.67	33.98	44.78	02/15/94	44			15.2	189.9%	
02/22/94	2	XL-24	130	65	2.75	1.17	23.64	55.56	02/22/94			35.5	30.4	16.9%	

Total Drill Time = 4.86 Hours  
Average Penetration Rate = 26.75 Feet / Hour

Total Redrill Time = 2.09 Hours  
Average Penetration Rate = 58.37 Feet / Hour

Verticality Information  
At Full Depth = 1" North X 3" West  
S-ARC North = 28.77  
S-ARC South = 25.04

Quality Coring: Non NQ from 0' to 12'

Comments:

Primary Pile # 737  
Area "D"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
02/08/94	1	DHD130A	60		2.42		24.79		02/08/94	74			14.0	428.2%
03/07/94	2	XL-24	130	60	3.16	1.67	22.15	35.93	03/10/94			35	30.4	15.3%

Total Drill Time = 5.58 Hours  
Average Penetration Rate = 23.30 Feet / Hour

Total Redrill Time = 1.67 Hours  
Average Penetration Rate = 35.93 Feet / Hour

Verticality Information  
At Full Depth = 0" N/S X 0" E/W  
S-ARC North = 28.13  
S-ARC South = 26.76

Quality Coring: None.

Comments: Hole caved in to 30'

Secondary Pile # 738  
Area "D"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
09/22/94	1	DHD130A	53		2.67		19.85		09/22/94		17		12.4	37.4%
02/01/94	1	DHD130A	53			53	1.00	0.00	02/02/94	18			12.4	45.4%
02/28/94	1	DHD130A	130		5.50	53	1.25	14.00	03/01/94			36.5	30.4	20.2%

Total Drill Time = 8.17 Hours  
Average Penetration Rate = 15.91 Feet / Hour

Total Redrill Time = 2.25 Hours  
Average Penetration Rate = 47.11 Feet / Hour

Verticality Information  
At Full Depth = 0° NS X 0° E/W  
S-ARC North = 28.13  
S-ARC South = 26.76

Quality Coring: None.

Comments: Guide wall cracked; Hole fell in to 17' on 9/22/94. Cavity at 53' - Stopped hole

## **CONFORMING PILE DATA**

Conforming Pile # 26-27  
Area "A"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage Drill (FT)	Redrill (FT)	Pure Drill Time Drill (HRS)	Redrill (HRS)	Penetration Rate Drill (FT / HR)		Redrill (FT / HR)
05/03/92	1	DHD130A	82		7.33		11.19		
					Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)
					05/07/93			21	19.1
					Overbreak				
					9.7%				

Total Drill Time = 7.33 Hours  
Average Penetration Rate = 11.19 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information At Full Depth = 2.5" South X 1" East

Quality Coring: None.

Comments:



CUT-OFF WALL EXCAVATION				CUT-OFF WALL CONSTRUCTION									
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)						
05/04/93	1	DHD130A	153		14.92		10.25				40	35.7	12.0%

Total Drill Time = 14.92 Hours  
Average Penetration Rate = 10.25 Feet / Hour

Total Redrill Time =  
Average Penetration Rate =  
None

Verticality Information

At Full Depth = 1.5" South X 2.25" East

S-ARC North =

S-ARC South =

**Quality Coring: None.**

**Comments:**

Conforming Pile # 50-51  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage Drill (FT)	Redrill (FT)	Pure Drill Time Drill (HRS)	Redrill (HRS)	Penetration Rate Drill (FT / HR)	Redrill (FT / HR)	Concrete Date	GROUT (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
05/05/93	1	DHD130A	150		14.08		10.65		05/18/93			38	35.0	8.5%

Total Drill Time = 14.08 Hours  
Average Penetration Rate = 10.65 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 2.21" N X 2.48" E  
CORD North = 17.33"

Quality Coring: None.

Comments:

Conforming Pile # 55-56  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage Drill (FT)	Redrill (FT)	Pure Drill Time Drill (HRS)	Redrill (HRS)	Penetration Rate Drill (FT / HR)	Redrill (FT / HR)	Concrete Date	GROUT (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
05/09/93	1	DHD130A	150		15.58		9.63		05/14/93			40	35.0	14.2%

Total Drill Time = 15.58 Hours  
Average Penetration Rate = 9.63 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 6.29" S X 1.31" E  
CORD North = 24.06"

Quality Coring: None.

Comments:

Conforming Pile # 58-59  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
01/06/93	2	XL-24	150		5.08		29.53		01/10/94			40	35.0	14.2%

Total Drill Time = 5.08 Hours  
Average Penetration Rate = 29.53 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 2.01" N X 1.63" W  
CORD North = 21.18"

Quality Coring: None.

Comments:

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
06/09/93	2	DHD130A	150		11.00		13.64		06/12/93			39.5	35.0	12.8%

**Total Redrill Time =**

**Average Penetration Rate =**

**None**

**Quality Coring: None.**

Conforming Pile # 68-69  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
01/02/94	2	XL-24	151		5.92			25.51	01/10/94			39	35.3	10.6%

Total Redrill Time =  
Average Penetration Rate =  
None

**Quality Coring: None.**

**Comments:**

CUT-OFF WALL EXCAVATION																
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		CUT-OFF WALL CONSTRUCTION							
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)	Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak		
01/07/94	2	XL-24	151		4.58			32.97			01/10/94			39	35.3	10.6%

**Total Redrill Time =**

**Average Penetration Rate =**

**None**

**Comments:**

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak		
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
06/21/94	1	DHD130A	150		8.75		17.14			40	35.0	14.2%		

Total Drill Time = 8.75 Hours  
Average Penetration Rate = 17.14 Feet / Hour

Total Redrill Time =  
Average Penetration Rate =  
None

Vertically Information

At Full Depth =	2.25" N X 2.5" W
CORD North =	29.86
S-ARC South =	

**Quality Coring: None.**

**Comments:**

CUT-OFF WALL EXCAVATION				CUT-OFF WALL CONSTRUCTION										
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
06/19/93	2	DHD130A	150		11.67		12.85		06/21/93			40	35.0	14.2%

Total Redrill Time = None

Vertically Information

At Full Depth =	3.25" S X 3.75" E
CORD North =	23.91"
S - APC South =	

**Comments:**

CUT-OFF WALL EXCAVATION				CUT-OFF WALL CONSTRUCTION										
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
06/09/93	2	DHD130A	150		10.42		14.40		06/10/93			40	35.0	14.2%

Total Redrill Time =

**Verticality Information**

At Full Depth =	2.75' N X 2' W
CORO North =	29.96"
S-ABC South =	

**Comments:**

Conforming Pile # 105-106  
Area "A"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage Drill (FT)	Redrill (FT)	Pure Drill Time (HRS)	Redrill (HRS)	Penetration Rate Drill (FT / HR)	Redrill (FT / HR)	Overbreak
06/15/93	2	XL-24	150		8.83		16.99		14.2%

Total Drill Time = 8.83 Hours  
Average Penetration Rate = 16.99 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1" N X 1.75" W  
CORD North = 28.99  
S-ARC South =

Quality Coring: None.

Comments:



Conforming Pile # 135-136  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
06/10/93	2	DHD130A	150		9.34		16.06		06/11/93			40	35.0	14.2%

Total Drill Time = 9.34 Hours  
Average Penetration Rate = 16.06 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 0° N/S X 5° W  
CORD North = 28.44"  
S-ARC South =

Quality Coring: None.

Comments:

Conforming Pile # 149-150  
Area "A"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
06/09/93	2	DHD130A	150		11.42		13.13		06/09/93			40	35.0	14.2%

Total Drill Time = 11.42 Hours  
Average Penetration Rate = 13.13 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1.5" N X 2.25" W  
S-ARC North = 28.82"  
S-ARC South =

Quality Coring: None.

Comments:

02/08/00

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
01/10/93	2	XL-24	171		5.91		28.93		01/11/93			44	39.9	10.2%

Total Redrill Time =  
Average Penetration Rate =  
None

**Quality Coring: None.**

**Comments:**

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	GROUT (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
11/30/93	2	XL-24	170		6.00		28.33		12/01/93			47	39.7	18.4%

**Total Redrill Time =**  
**Average Penetration Rate =**  
**None**

**Quality Coring: None.**

**Comments:**

Conforming Pile #J-502-503  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time			Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
08/04/94	1	DHD130A	185		12.83		14.42			08/05/94			47	43.2	8.8%

Total Drill Time = 12.83 Hours  
Average Penetration Rate = 14.42 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 6.0° South X 9.0° West  
Chord, North = 21.0°  
Chord, South = 31.44°

Quality Coring: None.

Comments:

Conforming Pile #J 505-506  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION					
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate			Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)							
08/01/94	2	XL-24	185		11.00			16.82		08/03/94			47	43.2	8.8%

Total Drill Time = 11.00 Hours  
Average Penetration Rate = 16.82 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 1.0° North X 4.25° East  
Chord, North = 26.78°  
Chord, South = 24.03°

Quality Coring: None.

Comments:

Conforming Pile #J 512-513  
Area "B"

CUT-OFF WALL EXCAVATION					CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage Drill (FT)	Redrill (FT)	Pure Drill Time Drill (HRS)	Redrill (HRS)	Penetration Rate Drill (FT / HR)	Redrill (FT / HR)	Overbreak
08/25/94	1	DHD130A	185		8.33		22.21		8.8%

Total Drill Time = 8.33 Hours  
Average Penetration Rate = 22.21 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 0° North / South X 0° East / West  
Chord North = 29.67"  
Chord South = 29.67"

Quality Coring: None.

Comments:

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	GROUT (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
08/10/94	2	DHD130A	185		9.83		18.82		08/11/94			47	43.2	8.8%

Total Drill Time =	9.83 Hours
Average Penetration Rate =	18.82 Feet / Hour

Total Redrill Time =  
Average Penetration Rate =  
None

Vertically Information

At Full Depth =

CORD North =

CORD South =

10.5" South X 8.5" West

**Quality Coring: None.**

**Comments:**

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
08/03/94	2	DHD130A	185		13.60		13.60		08/04/94			47	43.2	8.8%

**Total Drill Time = 13.60 Hours**  
**Average Penetration Rate = 13.60 Feet / Hour**

Total Redrill Time =  
Average Penetration Rate =

6" South X 3.5" West

At Full Depth =  
CORD North =  
CORD South =

Verticality Information

**Quality Coring: None.**

**Comments:**



Conforming Pile #J 544-545  
Area "B"

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment Rig #	Excavation Method	Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
			Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
08/08/94	2	DHD130A	185		12.25		15.10		08/09/94			47	43.2	8.8%

Total Drill Time = 12.25 Hours  
Average Penetration Rate = 15.10 Feet / Hour

Total Redrill Time = None  
Average Penetration Rate =

Verticality Information  
At Full Depth = 10.25' South X 3.75' West  
Chord North = 14.53"  
Chord South = 32.52"

Quality Coring: None.

Comments:

## CUT-OFF WALL CONSTRUCTION

Total Drill Time = 10.42 Hours  
Average Penetration Rate = 17.75 Feet / Hour

**Total Redrill Time =**

**Average Penetration Rate =**

**None**

Vertically Information

At Full Depth =  
 S-ARC North =  
 S-ARC South =

0° North / South X 2.5° East

**Quality Coring: None.**

**Comments:**

CUT-OFF WALL EXCAVATION										CUT-OFF WALL CONSTRUCTION				
Drilling Date	Equipment		Drill Footage		Pure Drill Time		Penetration Rate		Concrete Date	Grout (CU.YD.)	Non-Spec. Concrete (CU.YD.)	Spec. Concrete (CU.YD.)	Theoretical Volume (CU.YD.)	Overbreak
	Rig #	Excavation Method	Drill (FT)	Redrill (FT)	Drill (HRS)	Redrill (HRS)	Drill (FT / HR)	Redrill (FT / HR)						
08/24/94	1	DHD130A	185		13.30		13.91		08/25/94			45	43.2	4.2%

**Comments:**

# **PRODUCTION RATES**

**SUPERDRILL PRODUCTION RATES AT DIKE 1 FOR DIFFERENT MATERIALS**  
(USING A DHD130A BIT)

ROCK TYPE	STRENGTH (PSI)	AVG. DRILLING RATE (Ft./Hr)
SANDSTONE (Sylamore)	Range (7,142 – 26,938) Avg. 12,800	<sup>2</sup> (with cluster bit rate increased to 6 ft/hr)
DOLOMITE AND CHERTY LIMESTONE	Range (1,632 – 27,378) Avg. 10,000	14
BROKEN & WEATHERED LIMESTONE	---	<sup>27</sup> (Varies Greatly)
CONCRETE	Avg. 3,000	22